REMEDIAL ACTION WORK PLAN

For the

RENAISSANCE COMMERCIAL PARK
PARCEL C915198-II-11 and C915198-II-13
CONSTRUCTION OF PUBLIC ROAD B
(Tecumseh Phase II Business Park Sites II-11 and II-13
Site Nos. C915198K and C915198M)

At

New York State Route 5
Lackawanna, New York

(REVISION 1.0)

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1.0 INTRODUCTION

This Remedial Action Work Plan (RAWP) has been prepared for Industrial Land Development Corporation (ILDC) a Member of the Eire County Industrial Development Agency (ECIDA) Financing and Development Group by LiRo Engineers Inc. (LiRo) under a subcontract with Foit Albert Associates (FA). The proposed remedial action is being conducted under a New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP) Agreement (B9-0696-05-06 (B) between NYSDEC and Tecumseh redevelopment Inc., Buffalo, and Erie County Industrial Land Development Corporation (ILDC). ILDC has retained FA to design a Public Road B at the Renaissance Commercial Park (RCP). FA retained LiRo to prepare the RAWP for the project located a new parcel C915198-II-13 (C915198M). Also known as NYSDEC Brownfield Tecumseh Phase II Business Park Sies II-11 and II-13, Site Nos. C915198K and C915198M. This work will include an area to be removed from existing parcel C915198-II-11 (C915198K) under an Amendment to that BCP parcel. These land parcels are part of the RCP located 2303 Hamburg Turnpike, Lackawanna, New York 14218 (former Bethlehem Steel Site). New Parcel C915198-II-13 (C915198M) is currently undeveloped and is to be developed as Public Road B. The implementation of the Public Road will result in a cover system over the current soils that well be completed in accordance with the 2016 Decision Document (DD) for II-8 and 2017 DD for II-11 (2017, NYSDEC) (2016, NYSDEC) and (2012, NYSDEC). The Site location is shown on Figure 1-1.

Public Road B project proposes to construct approximately 1,550 feet of new roadway extending from Dona Street to a new cul-de-sac 1,565 feet to the north shown on Figure 1-2 and in Appendix 1. Public Road improvements include new public stormwater drainage, ADA compliant sidewalk, street lighting and signage. Incorporated into the construction of the road is a soil handling plan and finish cover system consistent with existing Site Management Plan (Appendix 2) and Excavation Work Plan (Appendix 3). The property is the former Bethlehem Steel Plant that has or will undergo remediation in accordance with Amended Brownfield Cleanup Agreement (BCA) Index No. B9-0696-05-06(B) (2021, NYSDEC). Figure 1-2 shows the approximate location of new parcel C915198-II-13 area of work for Public Road B.

1.1 Environmental Background

The Site was accepted into the NYSDEC Brownfield Cleanup Program in 2007. A Remedial Investigation (RI) was performed to characterize the nature and extent of contamination at parcels. The results of the RI were summarized in a Remedial Investigation/Alternatives Analysis Report (RI/AAR) (2012, Turn Key),.

Generally, the RI determined that conditions were consistent with the historic use of the Controlled Property for steel-making and finishing operations, with the widespread presence of fill material containing dark brown, non-plastic fines with fine to medium sand, slag, cinders, ash, gravel, cobbles, brick, metal debris, and concrete, all of which are ubiquitous on the Controlled Property. Soil/fill concentrations, where identified above 6NYCRR Part 375 commercial-use soil cleanup objectives (SCOs), varied according to the type and nature of the constituents. Specifically, elevated concentrations of volatile petroleum compounds (i.e., elevated PID readings) were observed at two test pit locations where field evidence of impact was observed (e.g., odor, sheen, and staining). Base-neutral semi-volatiles (i.e., polyaromatic hydrocarbons or PAHs) were detected at several locations above commercial SCOs; however, only three total SVOC concentrations were reported above 500 parts per million (ppm), which was deemed a site-specific SCO based on NYSDEC CP-51 guidance for non-residential sites where a cover system will be employed. Certain metals (total arsenic, mercury, and lead) were detected above commercial SCOs at several locations. Smear zone impact was present in

several locations as indicated by sheen and/or product on the water within the test pit, odor and staining. Remedial Investigation sampling and historical sampling have shown that Site soil has been impacted with semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), and metals. Appendix 2 (SMP) provides summary tables of the RI soil/fill and Groundwater analytical data.

Two hot spot excavations M and N were completed as an interim remedial measures (IRMs) at Parcel II-11 (Site No C195198K) in August of 2013 by Zoladz Construction Company. Hot spot M was and excavation of approximately 20 ft wide by 30 ft long, by 2 ft deep. Hot spot N was an excavation of approximately 20 ft. wide by 25 ft long by 2 ft deep. The hot spot material was characterized as soil/slag fill impacted by arsenic (M and N) and lead (N only). Excavated materials were transported and disposed of off-site at Chautauqua County Ellery Landfill. Hot spot M was backfilled with 20 tons of Beneficial Use Determination (BUD)-approved slag (BUD#55-9-15 from Iron City. Hot spot N was not back fill but regraded to match surrounding grades. Details of the IRMs are found in the Construction Completion Report (CCR) (January 2014, Turnkey).

One hot spot excavation L was completed in March 2013 at Parcel II-8 (Site Nos. C915198H by Zoladz Construction Company. The hot spot was characterized as soi/fill impacted with arsenic. Hot spot L excavation was 20 ft wide by 20 ft long and 2 ft deep. Excavated soil/fill was transported and disposed of off-site at Chautauqua County Landfill located in Jamestown N.Y. The excavation was not backfilled by regraded to match surrounding grades. Details of this IRM are found in the Letter Report (April 17, 2013, Turnkey) and the Decision Document (DD) (December 2016, NYSDEC).

1.2 Environmental Setting

The Parcel C915198-II-13 is an approximately, 2.5-acres tract of land, which has been subdivided from Parcel C915198-II-11. RCP properties are zoned for manufacturing. The area is flat and unimproved. Public Road B work area is approximately sixty feet wide by 1,575 feet long (103,950 square feet or 2.39 acres)

The Site elevation ranges from approximately, 584 to 582 feet above mean sea level (amsl). The Site is surrounded by Dona Street Extension to the south, vacant land to the north (BCP Site no C915198K) (BCP site nos. C915198H and C915198K) vacant land to the east (BCP Site nos. C915198H and C915198K) and Time Release Properties LLC facility and vacant land (BCP site no. 915198K) to the west.

The Site is located in the Erie-Ontario Lowlands physiographic province of New York State. Low Plains with little relief characterize the province with glacial deposition and shoreline deposits having modified topography. Erie County was buried by glacial ice and during subsequent retreats, glacially eroded soil and bedrock material were redeposited as a mixture of unconsolidated sediments across Erie County.

The United States Department of Agriculture Soil Survey of Erie County, New York indicates that the parcel is covered by surface soil classified as Urban Land; soil consisting of paved, foreign, or disturbed soils. Subsurface lithology observed RI generally consisted of a soil/fill unit comprised of non-cohesive coal and coke fines; slag; cindery ash and brick; concrete; gravel; silt; reddish silt (precipitator dust); and sand, all of which are ubiquitous from the former Bethlehem Steel Plant property. Boring logs from monitoring wells indicate that the thickness of the soil/fill unit ranges from approximately four feet (west side) to 12 feet (east side). Below the soil/fill unit is a native silty clay or clayey silt layer; a peat layer was noted at some test pits immediately below the soil/fill unit. The clay/silt/peat layers are underlain by Dolomitic limestone with shale bedding. This bedrock was encountered at 34 feet below

ground surface (ftbgs) along the western perimeter of the RCP.

The construction area is partially vegetated with secondary urban growth. Site surface soils/fill are well drained and with little occurrence of sheet flow or ponding. Surface water runoff flows into Road B new storm drainage system and ties into Dona Street Extension existing storm water manhole identified as MH-D1. Storm water is discharged from MH-D1 to Environmental 21 STORMPRO unit for treatment prior to discharge to the existing return trench located at the west end of Dona Street Extension.

Historically, due to the proximity of Lake Erie and municipal supplied water, groundwater in the area has not been developed for industrial, agricultural, or public supply purposes. There is a deed restriction that prohibits the use of groundwater on the property; consequently, no groundwater supply wells are present on Parcel C915198-II-13

Groundwater elevation measurements taken on April 30, 2010, indicate that the first water bearing zone (i.e., water table) ranges from approximately 6 to 13 feet below ground surface (ftbgs) within the soil/slag-fill unit.

1.3 RA Summary of Constituents of Concerns

The constituents of concern for this RA are VOCs, SVOCs, PCBs, and metals in soils. Summary tables of the RI soil/fill and Groundwater analytical data are provided in the SMP attached as Appendix 2.

1.4 Existing Controlling Documents and Construction Design

Parcel C915198-II-13 and the Public Road B construction are subject to the following documents.

1. Plans for Construction of the Renaissance Commerce Park – Public Road B, beginning at Dona St. Extension by Foit Albert Associates, dated March 17, 2022 (Attachment 1)
2. This Remedial Action Work Plan

These documents contain methods and procedures to be employed in the performance of this Remedial Action and are the site specific controlling documents. Additional documents may be required during the performance of the RA such as a Contractor's Health and Safety Plan (CHASP). The Tecumseh Phase II Business Park Site Management Plan (SMP) and Excavation Work Plan (EWP) have been used historically by the Department for interim management of the Tecumseh Business Park Brownfield sites. However, upon approval, the RAWP will be the controlling document for the remedial components associated with 'Road B' construction.

2.0 REMEDIAL ACTION

The DD for Parcel II-8 and Parcel II-11 (December 2016, NYSDEC and January 2017, NYSDEC) required elements of the selected remedy applicable to the construction of Public Road B project are:

1. The selected remedy is a Track 4: Restricted use with site-specific soil cleanup objectives remedy.
2. The selected remedy is referred to as the Site Cover with Institutional Controls remedy.
3. Site cover will be required to allow for commercial use of the site in areas where the upper one foot of exposed surface soil exceed the commercial soil cleanup objectives (SCOs).
4. The site cover may consist of paved parking areas, sidewalks, soil cover, or other Department approved cover.
5. Where soil cover is required, it will be a minimum of one foot of soil with the upper six inches of soil of sufficient quality to maintain a vegetative layer.
6. All cover will be placed over a demarcation layer.
7. Any cover material, including any fill material brought to the site, will meet the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d).
8. In areas were building foundations or building slabs, which preclude contact with soil exist, the requirement for a site cover will be deferred until such time that they are removed.

The construction of a paved road with associated sidewalks, curbing, utilities is consistent with the selected remedy items 1,2,3, and 4. A general description of the RA to be completed during the construction of Public Road B is the excavation, regrading and removal (if necessary) of soils for the installation of utilities and construction of a road and sidewalk in the 66 feet wide, 1,585 feet long parcel. Utility trenches are anticipated to be 10 feet wide by 5 feet deep installed adjacent to the Public Road B. Excavated soils will be field screened for visual, olfactory and total organic vapors using a photoionization detector. Any excavated soil that exhibits discoloration, odors or TOV concentrations indicative of impacted soil will be segregated, staged, characterized and properly disposed of off-site. Soils with no evidence of impacts from field screening will be used for construction or re-graded. The soil screening and reuse are in line with the SMP required by the DDs. Once excavations and final grades are achieved, a demarcation layer will be installed and asphalt and/or concrete paving will be constructed. The demarcation layer is consistent with item 6 above. The installation of asphalt and/or concrete paving is consistent with item 4 above. In those areas where no paving is performed a minimum of 12 inches of NYSDEC Approved cover material will be placed over the demarcation layer. The top 6 inches of cover material will be suitable for maintaining a vegetative layer. The 12 inches of cover is consistent with item 5 above, the 6 inches of soil suitable for vegetative layer is consistent with item 5, and NYSDEC approved cover material is consistent with item 7. The maximum total depth of utility excavation is approximately 5 feet below current existing grade. The location Parcel C915198II-13 is shown on Figure 1-2. Proposed extents of various cover systems are shown on Figures 2-1A, 2-1B and 2-1C. The proposed stockpile locations are shown on Figure 2-2. The Public Road B detailed design drawing are provided in Appendix 1.

2.1 RA Cleanup Objectives

The cleanup objective of this RA is to remove or mitigate exposure to soils which are suspected to be contaminated at the unimproved open area located in Parcel C195198II-13 (Figure 1-2). The applicable soil cleanup objective is defined by 6 NYCRR Subpart 375-6.8 (b) Restrictive Use Soil Cleanup Objectives (SCOs) Protection of Public Heal Commercial or Industrial.

Remedial actions will occur in the limits of work for Public Road B construction (Appendix 1). The

remedial objectives will be achieved by as-needed removal with off-site disposal of impacted soils as determined in the field following the procedures in the Excavation Work Plan (Appendix 3) and installation of clean cover system consisting of asphalt/concrete paving or 12 inches of NYSDEC approved clean soil (i.e., soil that meets NYSDEC commercial and industrial Soil Cleanup Objectives) cover material. The Public Road B construction will provide a composite cover system for any soils that may be impacted from the former Bethlehem Steel Plant operations.

2.2 RA Standards, Criteria and Guidance (SCGs)

The standards, criteria, and guidance (SCG) to be applied for the RA are listed on the following table:

Item Description	Parameter	Criteria
Soils	VOCs, SVOCs, PCBs, Metals	6 NYSDEC Subpart 375 6.8 (b) Restrictive Use Soil Cleanup Objectives (SCOs) Protection of Public Health Commercial and Industrial.
Soils	Per and Polyfluoroalkyl Substance (PFAS)	Following "Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substance (PFAS)" [June 2021, NYSDEC].

The RA achieves these standards by installing a cover system comprised of asphalt or concrete paving and in unpaved areas a 12 inch thick clean cover soil layer with the top 6 inches of soil suitable of vegetative cover that follows material requirements as set forth in 6 NYCRR Part 375-6.7(d). .

2.3 Remedial Action Activities

The work to be performed during the remedial action includes: the excavation, management, testing, transport, and disposal of soil removed during the installation of utilities and road/sidewalk construction. A breakdown of the work to be performed is as follows.

1) Excavation as required by Public Road B design (Appendix 1) for installation of utilities and road grading.
2) Screening, characterization, and segregation of excavated soils. Soil with no observable impacts will be reused to achieve design grade to the extent possible. Observably contaminated soil – if encountered, will be characterized and transported to a permitted landfill or disposal facility. All excavated soils will be handled, staged, characterized, transported, treated, and disposed of off-site as required by the SMP (Appendix 2) and EWP (Appendix 3).
3) Import as needed of clean fill for backfilling the utility corridor, bedding and grade establishment. Imported material will meet the requirements of the SMP (Appendix 2) and EWP (Appendix 3) and will be approved for import by NYSDEC prior to being brought to the site and meet the requirements of 6 NYCRR Subpart 375-6.8 (b) Restrictive Use Soil Cleanup Objectives (SCOs) Protection of Public Health Commercial and Industrial categories.
4) Installation of a demarcation membrane or geotextile over pre-final grade existing soils, prior to backfill or paving.

5) Installation of asphalt and/or concrete roadway or sidewalks
6) In areas not to be paved a minimum of 12 inches of NYSDEC approved cover material shall be placed, the upper 6 inches of any soil cover must be suitable quality to support vegetation.
7) All necessary incidental services not specifically noted but which are required for completion of the specified work; and,
8) Environmental reporting.
    a) Proof of qualification credentials.
    b) Copies of transport manifests.
    c) Contaminated soil field report.
    d) Logs, reports, and record keeping; and,
    e) Bills of ladings, Certified Weight Tickets.

During the excavation work, a Qualified Environmental Professional (QEP) will provide oversight and soil screening. Soil will be screened for visual, olfactory; evidence of contamination and total organic vapor readings will be recorded using a photoionization detector (PID). Soil showing evidence of contamination based on screening will be segregated and stockpiled separately from soil showing no evidence of contamination.

Field instruments will be calibrated using the calibration procedures specified in the equipment manuals.

Excavated soils will be screened and handled following the Excavation Work Plan (Turnkey, Revised (July 2021) Appendix 3. In general, a Qualified Environmental Professional will use field soil screening, soils may be segregated into non-impacted soil/fill suitable for on-site reuse or impacted soils for off-site disposal.

All soil stockpiles will be placed on plastic sheeting or equivalent and a continuous berm, erosion control filtration logs and/or silt fence will be placed around soil/fill stockpiles. Hay bales will be used as needed near catch basins, surface waters, and other discharge points. Stockpiles will be covered with appropriately anchored tarps or poly sheeting. Stockpiles will be routinely inspected at a minimum once each week and after every storm event. Damaged tarp covers will be promptly replaced. Figure 2-2 shows the proposed soil staging areas.

Results of inspections will be recorded in a logbook, maintained with the Site Owner or Owner's representative, and made available for inspection by NYSDEC.

Prior to utility installation or paving, the final excavation limits will be identified by placing a demarcation layer (i.e., snow fencing, geotextile, or other readily identifiable material) along the excavation sidewalls and bottom.

2.3.1 Slag Management

If a seam or pocket of slag material is encountered, in excess of what is considered to be intermingled and in de minimis quantities, the NYSDEC will be notified immediately; If needed, potentially impacted slag will be segregated for further testing/evaluation, and handling as directed by NYSDEC. If needed, a NYS Department of Health (NYSDOH) certified Contractor will be retained to prepare an Action-Plan to address additional screening, sampling, analysis, handling and disposal of the elevated radiological material. Slag material may be used as backfill as per the SMP and with NYSDEC concurrence under Beneficial Use Determination (BUD) #555-19-15.

2.3.2 Anticipated Waste Handling and Decontamination Procedures

No hazardous waste is anticipated to be generated by the project. Standard construction waste from material packaging and project trailer waste will be disposed as standard non-hazardous municipal waste and direct loaded into a dumpster/roll off container and be transported and disposed by a commercial municipal waste subcontractor. No decontamination procedures are anticipated for this waste stream.

Most excavated materials are expected to be re-used during construction. If the excavated soil/fill is found to be unsuitable for re-use on-site, then it will be staged on plastic sheeting and direct loaded in to dump trucks or roll offs, transported and disposed of as non-hazardous soil/fill at a facility licensed to accept the material. Decontamination procedures will be gross cleaning with brooms or brushes of trucks exiting the work area to remove soil/debris and mitigate migration of soil from the work areas.

If hazardous materials are encountered during construction, then a hazardous materials work plan and safety plan will be developed and submitted to NYSDEC.

2.4 Project Monitoring

A QEP will be on-site during excavation work on a full-time basis to document the RA activities and to provide any required air monitoring and soil sampling. Documentation will include at a minimum, daily reports of RA activities, air monitoring results, photographs, and sketches. In addition, the horizontal and vertical extent of all excavations will be surveyed to document the extent of remedial excavation. These extents will be shown on a figure that is stamped by a professional engineer licensed to practice in New York State.

Standard daily reporting procedures will include preparation of a daily report, and when appropriate, problem identification and corrective measures report. Information that may be included on the daily report form includes:

- Approximate sampling locations (sketches) and sample designations.
- Processes and locations of activities under way.
- Equipment and personnel working in the area, including subcontractors.
- Approximate volume and description of materials removed (i.e., hazardous and non-hazardous materials soil).
- Number and type of truckloads of materials removed from the Site.

The completed reports will be submitted to the NYSDEC as part of the RA Construction Completion Report. Photo documentation of the RA activities will be prepared by the Engineer or Scientist throughout the duration of the project as necessary to convey typical work activities and whenever changed conditions or unexpected circumstances are encountered. The QEP will provide RA oversight to evaluate the on-going adequacy of the RA to ensure that all activities are conducted in accordance with the RA Work Plan.

2.5 Health and Safety

Temporary controls will be employed for protection against off-site migration of soil and safety hazards during the RA. The work will be performed by workers who are trained and certified as required for specific tasks. The Contractor shall be required to develop a written Health and Safety Plan (HASP) that will comply with all applicable federal and state regulations protecting human health and the environment from the hazards posed by activities during this Site remediation. The Contractor's HASP

will be developed for this project and will be provided to NYSDEC as an addendum (Appendix 6) to this Remedial Action Work Plan when completed.

2.5.1 Community Air Monitoring Plan

A Real-time community air monitoring program (CAMP) will be implemented during any ground intrusive activity and active handling of soil/fill at the Site. Community air monitoring will be performed in accordance with Generic Community Air Monitoring Plan (2010, NYSDEC) that is included as Appendix 3 to this Work Plan). Particulate and VOC monitoring will be performed along the upwind and downward perimeter of the work area during subgrade excavation and soil handling activities in accordance with this plan. The EWP provided methods and procedures for implementation of the CAMP (Appendix 4)

2.5.2 Vapor Monitoring

During subsurface soil excavation, QEP will perform real time soil vapor monitoring using a PID. VOCs will be monitored upwind and downwind at the perimeter of the work area during all ground intrusive activities.

- If the 15-minute ambient air concentration of organic vapors at the downwind perimeter of the exclusion zone exceeds 5 ppm above background, work activities will be halted and monitoring continued.
- If the organic vapor decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.
- If the ambient air concentration of organic vapors at the downwind perimeter of the exclusion zone persists at levels above 5 ppm over background but less than 25 ppm, activities must be halted, the source of vapors identified, corrective actions to abate the emissions taken, and monitoring continued. After these steps, work activities can resume provided that: the organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest off-site potential receptor or residential or commercial structure, whichever is less (but in no case less than 20 feet), is below 5 ppm over background for the 15-minute average.
- If the organic vapor level is above 25 ppm at the perimeter of the exclusion zone work activities must be shut down and Site Health Officer (SHO) will be informed, the SHO will contact emergency personnel as needed and air monitoring will be continued at ½ the distance from the exclusion zone to the nearest receptor.

2.5.3 Particulate Monitoring

Particulates will be monitored upwind and downwind of the perimeter of the work area on a continuous basis during the soil excavation and soil load-out activities. The particulate meters will be programmed to calculate 15-minute average concentration. If the difference between the measured upwind and downwind concentrations is greater than or equal to 100 ug/m3 earthwork activities will be stopped and dust suppression methods employed. Work may resume only after the measured upwind/downwind difference has been reduced to less than 100 ug/m3.

2.6 Quality Assurance Project Plan (QAPP)

No analytical testing is anticipated that will require a QAPP. If any characterization samples are required for disposal, the samples will be analyzed by a laboratory certified under NYSDOH ELAP. If the project scope changes then a QAPP will be developed and provided to NYSDEC as an addendum

to this RAWP. Any analytical testing will be performed by a laboratory that is a participant in the NYSDOH Environmental Laboratory Accreditation Program.

2.7 Schedule

Key milestones of the RA schedule are detailed below:

- Mobilization – 3rd Quarter 2022
- On-site RA Work – 3rd Quarter 2022
- RA Closure Report – 1st Quarter 2023

3.0 RA REPORTING

3.1 Monitoring

The project work will be monitored by Construction Manager (CM) retained by the owner to oversee and function as their representative for the project. The CM is responsible for conformance with projected plans and specifications, work plans and other documents defining the work to be completed on the project.

The Construction Manager will be assisted by:

- QEP and/or New York State Licensed Professional Engineer {PE} are responsible for ensuring the remedial elements identified in this RAWP are implemented and documented
- QEP to implement the Community Air Monitoring Program, verify classification of materials, collect soil, waste and water samples if needed.
- Construction Inspector under the direction of a PE will perform field inspections required by the contract documents.

The CM will be responsible that all daily, weekly and monthly reports and other documents required by the contract area produced and distributed as required.

3.2 RA Completion Report

Details of completion of RA activities will be documented in an RA Construction Completion Report submitted to the NYSDEC. The results of all sampling and analysis will be presented. The Report will present a detailed summary of Site physical conditions, chemical conditions and potential risks to human health or the environment. The RA Report will be stamped by a Professional Engineer and will include (at a minimum):

- Text describing the RA activities performed; a description of any deviations from the RAWP and associated corrective measures taken; and other pertinent information necessary to document that Site activities were conducted in accordance with this RAWP.
- A Site map showing areas of impacted soils as determined from field screening, and significant Site features.
- Tabular quantity summaries of volume of materials removed.
- Documentation on the disposition of material removed from the Site.
- Tabular comparison of soil sampling and disposal characterization analytical results to disposal criteria, respectively.
- Confirmation of Soil Cover system meets RA Objectives.
- As-built drawings of the cover system signed and stamped by a PE.
- Copies of daily inspection reports and, if applicable, problem.

3.3 Site Management Plan

A Site Management Plan (SMP) has been previously prepared and is attached in Appendix 2.

4.0 REFERENCES

2010 NYSDEC, *"New York State Department of Health Generic Community Air Monitoring Plan, Appendix 1A of Final DER-10 Technical Guidance for Site Investigation and Remediation"*, NYSDEC, May 2010.

2012 NYSDEC, *"Decision Document Tecumseh Phase I Business Park, Brownfield Cleanup Program Lackawanna, Erie County Site No. C915197"*, NYSDEC, January 2012.

2012 Turn Key, *"Phase II Business Park, Tecumseh Redevelopment Inc., Lackawanna, New York"*, Turn Key Environmental Restoration, LLC, Revised March 2012.

2014 Turn Key, *"Construction Completion Report, Metal-Impacted Hotspots, Business Park Sub-parcels II-2,II-3,II-5 & II-11"*, Turn Key Environmental Restoration, LLC, January 2014.

2013 Turn Key, *"Brownfield Cleanup Program Excavation Work Plan Tecumseh Phase II Business Park, Site Nos C1915198 through C915198L"*, Turn Key Environmental Restoration, LLC, December 2013.

2014 Turn Key, *"Site Management Plan (SMP) Brownfield Cleanup Program Tecumseh Phase II Business Park, Site Nos C1915198 through C915198L"*, Turn Key Environmental Restoration, LLC, January 2014.

2016 NYSDEC, *"Decision Document Site II-8 Tecumseh Phase II Business Park, Brownfield Cleanup Program Lackawanna, Erie County Site No. C915198H"*, NYSDEC, December 2016.

2017 NYSDEC, *"Decision Document Site II-11 Tecumseh Phase II Business Park, Brownfield Cleanup Program Lackawanna, Erie County Site No. C915198K"*, NYSDEC, January 2017.

2017 Turn Key, *"Tecumseh Redevelopment – Business Park Area II: Sub-parcel 8 "Hotspot L" Remedial Excavation BCP Site No. C915198H"*, Turn Key Environmental Restoration, LLC, Revised April 17, 2017.

2021 NYSDEC, *"Brownfield Cleanup Program (BCP) Application to Amend Brownfield Cleanup Agreement and Amendment"*, NYSDEC, September 3, 2021.

5.0 PROFESSIONAL ENGINEER SIGNATURE

I, Michael Lydle, certify that I am currently a NYS registered Professional Engineer and that this Remedial Action Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10)

Michael F. Lydle, P.E.

Date July 8, 2022

Seal

Number 070504

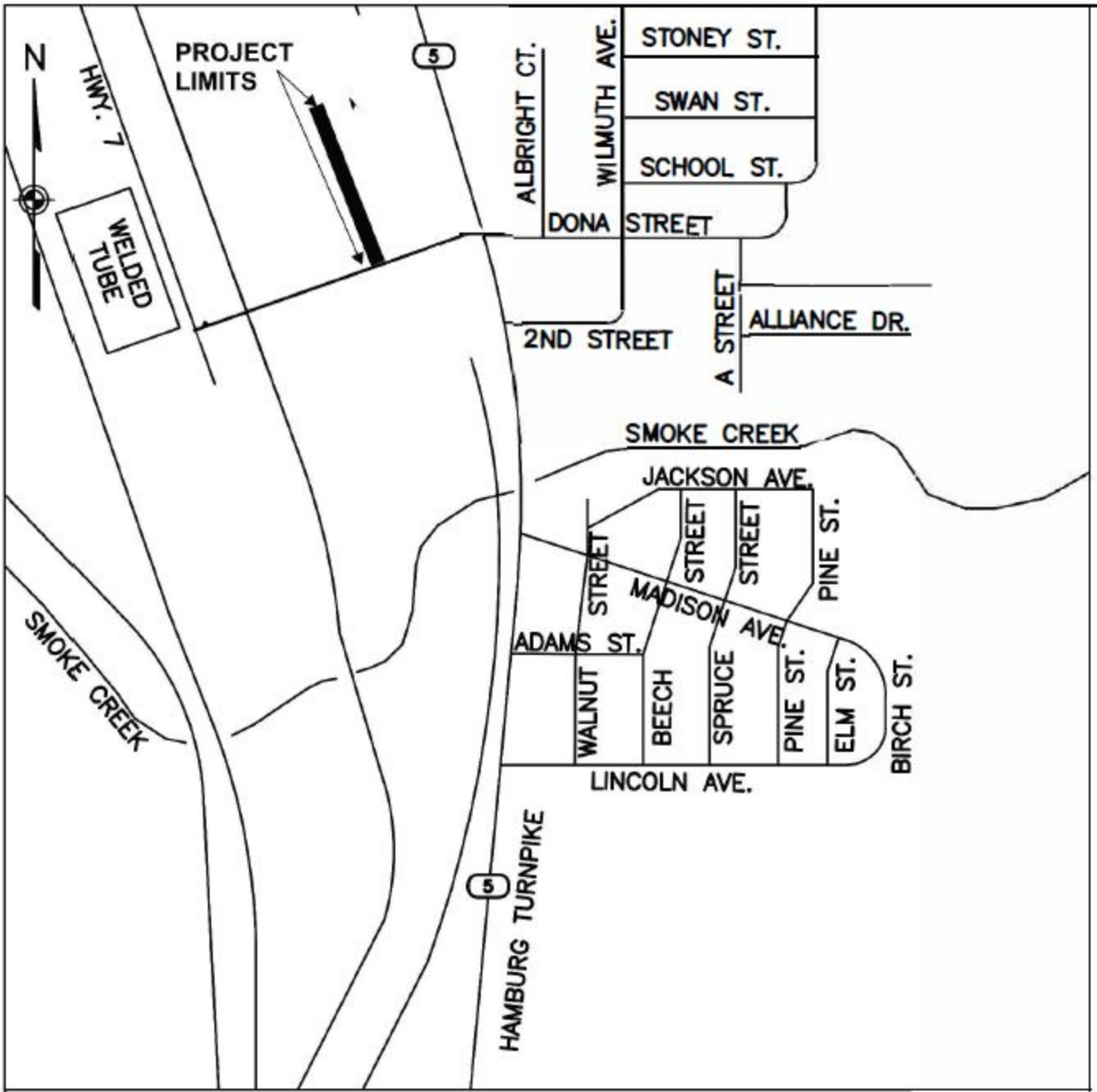
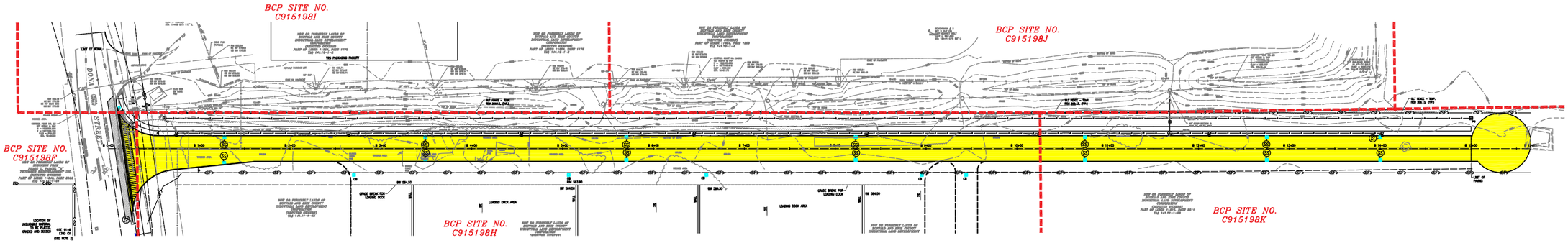


FIGURE 1-1

Location Map

Not to Scale



LEGEND

ROAD B WORK AREA

60 0 60

SCALE IN FEET

WARNING

IT IS A VIOLATION OF SECTION 7209, SUBDIVISION 2, OF THE NEW YORK STATE EDUCATION LAW FOR ANY PERSON, OTHER THAN THOSE WHOSE SEAL APPEARS ON THIS DRAWING, TO ALTER IN ANY WAY AN ITEM ON THIS DRAWING. IF AN ITEM IS ALTERED, THE ALTERING ENGINEER SHALL AFFIX TO THE ITEM HIS SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

NO.	DATE	DESCRIPTION
		REVISIONS

LiRo Engineers, Inc.
690 Delaware Avenue
Buffalo, New York

PROJ. ENG.:
DESIGNED BY:
CHECKED BY:
DRAWN BY:

CLIENT:
ECIDA/ILDE
95 PERRY STREET, SUITE 403
BUFFALO, NEW YORK 14203

DATE: JUNE 2022

SCALE: AS SHOWN

JOB TITLE AND LOCATION:
RENAISSANCE COMMERCE PARK
PUBLIC ROAD B

DRAWING TITLE:
SITE DEVELOPMENT PLAN

LIRO JOB NO.: 21-220-0135

SHEET OF

FIGURE NO.
1-2

V:\ECIDA\21-220\0135 ECIDA - Former Bethlehem Steel Road B\Design\Brownfield Areas\Road B Brownfield Areas.dwg, 6/13/2022 3:23 PM

RENAISSANCE COMMERCE PARK - PUBLIC ROAD B
Sheet Number 26 OF 31

N

LIMIT OF WORK

BCP SITE NO. C915198G

BCP SITE NO. C915198I

NOW OR FORMERLY LANDS OF BUFFALO AND ERIE COUNTY INDUSTRIAL LAND DEVELOPMENT CORPORATION(REPUTED OWNER) PART OF LIBER 11354, PAGE 1175 TA# 141.19-1-2

TRS PACKAGING FACILITY

DONA STREET

SAN

D 9+00

D 10+00

D 11+00

B 0+00

B 1+00

B 2+00

B 3+00

B 4+00

B 5+00

MH-B1
STA. D 9+34±, 18.56' LT.=
STA. B 0+11±, 45.13' LT.
TG=584.75
INV. NE=578.54 (IN)
INV. SW=578.54 (OUT)

ITEM E680.51960011
FURNISH AND INSTALL CONCRETE FIBER OPTIC PULLBOX

DS-B2
STA. B 1+27.86, 14.00' LT.
TG=583.38
INV. N=578.68 (IN)
INV. E=578.68 (IN)
INV. W=578.68 (OUT)

DS-B4
STA. B 3+49.00, 14.00' LT.
TG=583.63
INV. N=579.01 (IN)
INV. E=579.01 (IN)
INV. S=579.01 (OUT)

DS-B1
STA. B 1+27.86, 17.29' RT.
TG=583.31
INV. W=578.73 (OUT)

DS-B3
STA. B 3+49.00, 14.00' RT.
TG=583.63
INV. INV. W=579.05 (OUT)

5' SIDEWALK

ITEM 663.31
RELOCATE EXISTING HYDRANT

(ITEM 201.06)
CONCRETE AND CONSTRUCTION RUBBLE

ITEM 202.19
SUBSTRUCTURE REMOVAL

MILL EXISTING ASPHALT 1-1/2" TO CENTER OF WESTBOUND DONA STREET TRAVEL WAY AND PAVE WITH ROAD B TOP COURSE PLACEMENT OR A.O.B.E. ITEM 490.30

STA. D 9+77 = STA. B 0+00

CONTROL POINT NO. 23
SET REBAR & CAP
N = 1025804.900
E = 1077296.726
ELEV = 584.001
STA = 10+00.00

FOUND REBAR
0.10NE
0.13SE

RIM = 584.19
NE INV = 575.39
SE INV = DEAD END
NW INV = 575.99

RIM = 585.05
SE INV = 576.65
NW INV = 576.85

RIM = 583.21
SW INV = 578.52
NW INV = 578.65

RIM = 582.74
SE INV = 578.83
NW INV = 578.94

RIM = 583.05
SE INV = 579.25
SW INV = 579.14
NW INV = 579.19

RIM = 582.86
SE INV = 579.40
NW INV = 579.51

CONC PAD (TYPICAL)
RIM = 583.54
NE INV = 578.52
SW INV = 578.51

12.3'X7.5' ELECTRICAL BOX ON CONC PAD

HANDICAPPED RAMP

(WIDTH) (VARIES)

ASPHALT PAVEMENT

ASPHALT DRIVE

ASPHALT PARKING LOT

CONCRETE CURB

SOLID YELLOW STRIPE

SOLID WHITE STRIPE

EDGE OF PAVEMENT

ELEVATION BREAK

TOP OF BERM

BOTTOM OF BERM

GRASS

BRUSH

WOODED AREA

BURIED CONCRETE PAD

CONC PAD

RUINS

RIP-RAP

2021 SURVEY BASELINE
N 21°21'31" W 681.79'

18" HDPE

15" SICPP

8" RCP

8" CONC CURB EDGE OF PAVEMENT

8" PVC

6" RCP

14.0'

23.0'

R=50'

CB

BW 584.50

CB
RIM 583.90
BW 584.50

GRADE BREAK FOR LOADING DOCK

WALL

LOADING DOCK AREA

5%

ITEM 670.2003 - GALVANIZED STEEL CONDUIT, 2"

RELOCATE LIGHT POLE (LP-3)
ITEM 670.80
ITEM 670.82

ITEM 670.2602 - RIGID PLASTIC CONDUIT, 2"

RELOCATED FIRE HYDRANT WITH NEW TAPPING SLEEVE. ECWA SHALL BE NOTIFIED 7 DAYS PRIOR TO TAPPING EXISTING 16-INCH DUCTILE WATER MAIN.

RELOCATED LIGHT POLE (LP-3)
ITEM 678.90

66' WIDE WATERLINE EASEMENT TO THE COUNTY OF ERIE LIBER 10000, PAGE 613

PERMANENT EASEMENT TO THE COUNTY OF ERIE

BCP SITE NO. C915198H

NOW OR FORMERLY LANDS OF BUFFALO AND ERIE COUNTY INDUSTRIAL LAND DEVELOPMENT CORPORATION (REPUTED OWNER) TA# 141.11-1-52

NOW OR FORMERLY LANDS OF BUSINESS PARK PHASE II, PARCEL "B" TECUMSEH REDEVELOPMENT INC. (REPUTED OWNER) PART OF LIBER 11040, PAGE 8953 TA# 141.11-1-51

LOCATION OF UNSUITABLE MATERIAL TO BE PLACED, GRADED AND SEEDED

SITE 11-6
1700 CY
(SEE DWG. ECP-1)

+00.00

PROPOSED UNILAND DISTRIBUTION FACILITY

MATCHLINE "A" - MATCH STA. B 5+50 SEE DWG. PL-2

. PL-2

One Foot of soil with the upper six inches of soil of sufficient quality to maintain a vegetative layer.

Concrete side walk

Asphalt Road

FIGURE 2-1A
COVER TYPE
REMEDIAL ACTION WORK PLAN

0 4 8 12 FT
VERTICAL SCALE
1" = 4' SCALE BAR

0 20 40 60 FT
HORIZONTAL SCALE
1" = 20' SCALE BAR

FoitAlbert ASSOCIATES
Architecture, Engineering, Surveying
350 Main Street, Suite 300 Buffalo, New York 14202

ECIDA/ILDE
95 Perry Street, Suite 403
Buffalo, New York 14203

RENAISSANCE COMMERCE PARK - PUBLIC ROAD B

GENERAL PLAN AND PROFILE

Sheet No.	
Date	Feb. 2022
Scale	As Noted
DWG.	PL-1

RENAISSANCE COMMERCE PARK -
PUBLIC ROAD B
Sheet Number 27 OF 31

N

MATCHLINE 'A' – MATCH STA. B 5+50 SEE DWG. PL-1

MATCHLINE 'B' – MATCH STA. B 11+50 SEE DWG. PL-3

DS-B6
STA. B 5+70.28, 14.00' LT.
TG=583.97
INV. N=579.34 (IN)
INV. E=579.34 (IN)
INV. S=579.34 (OUT)

DS-B5
STA. B 5+70.28, 14.00' RT.
TG=583.97
INV. W=579.39 (OUT)

DS-B8
STA. B 8+22.64, 14.00' LT.
TG=584.34
INV. N=579.72 (IN)
INV. E=579.72 (IN)
INV. S=579.72 (OUT)

DS-B7
STA. B 8+22.64, 14.00' RT.
TG=584.34
INV. W=579.76 (OUT)

DS-B10
STA. B 10+75.00, 14.00' LT.
TG=584.72
INV. N=580.10 (IN)
INV. E=580.10 (IN)
INV. S=580.10 (OUT)

DS-B9
STA. B 10+75.00, 14.00' RT.
TG=584.72
INV. W = 580.14 (OUT)

PP #2303
STA. B 9+40± 55'± LT.

2021 SURVEY BASELINE
N 18°36'26" W 593.61'

BROKEN CONC. (ITEM 201.06)

CONCRETE PAD 5' SIDEWALK

CONC. FOUNDATION (ITEM 202.19)

CONC. RUBBLE & BRICK, (ITEM 201.06)

BROKEN CONC. W/ REBAR, (ITEM 201.06)

WOOD TIES AND RUBBLE, (ITEM 201.06)

15" SICPP

14.0'

CB

BW 584.50

WALL

5%

2%

GRADE BREAK FOR LOADING DOCK

LOADING DOCK AREA

BCP SITE NO. C915198H

BCP SITE NO. C915198K

NOW OR FORMERLY LANDS OF BUFFALO AND ERIE COUNTY INDUSTRIAL LAND DEVELOPMENT CORPORATION (REPUTED OWNER) TA# 141.11-1-52

PROPOSED UNILAND DISTRIBUTION FACILITY

One Foot of soil with the upper six inches of soil of sufficient quality to maintain a vegetative layer.

Concrete side walk

Asphalt Road

FIGURE 2-1B
COVER TYPE
REMEDIAL ACTION WORK PLAN

HORIZONTAL SCALE
1" = 20' SCALE BAR
0 20 40 60 FT

VERTICAL SCALE
1" = 4' SCALE BAR
0 4 8 12 FT

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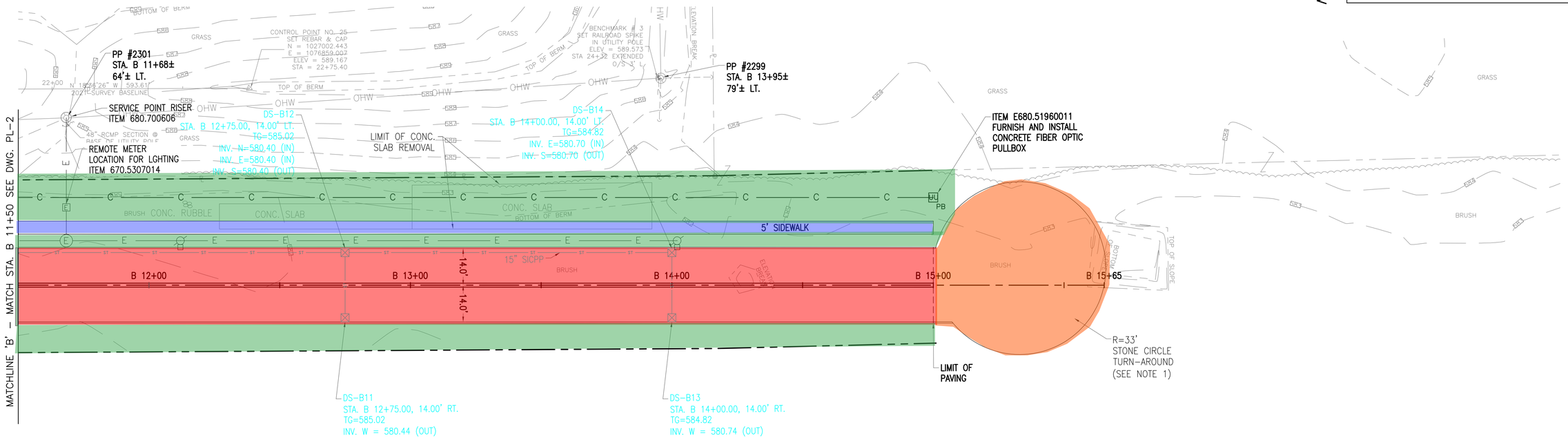
RENAISSANCE COMMERCE PARK - PUBLIC ROAD B

GENERAL PLAN AND PROFILE

Sheet No.
Date Feb. 2022
Scale As Noted
DWG. PL-2

RENAISSANCE COMMERCE PARK -
PUBLIC ROAD B
Sheet Number 28 OF 31



NOW OR FORMERLY LANDS OF BUFFALO AND ERIE COUNTY INDUSTRIAL LAND DEVELOPMENT CORPORATION (REPUTED OWNER) LIBER 11316, PAGE 2211 TA# 141.11-1-52

BCP SITE NO. C915198K

NOW OR FORMERLY LANDS OF BUFFALO AND ERIE COUNTY INDUSTRIAL LAND DEVELOPMENT CORPORATION (REPUTED OWNER) LIBER 11316, PAGE 2211 TA# 141.11-1-52

One Foot of soil with the upper six inches of soil of sufficient quality to maintain a vegetative layer.

Concrete side walk

Asphalt Road

Crushed Stone Paving

FIGURE 2-1C
COVER TYPE
REMEDIAL ACTION WORK PLAN

NOTES:

1. ECIDA RESERVES THE RIGHT THE RIGHT TO MODIFY OR REMOVE CONSTRUCTION OF THE CIRCLE TURN-AROUND FROM THE PUBLIC ROAD B PROJECT. PAYMENT FOR NO WORK WILL BE FOR ONLY THE WORK DONE. THE CONTRACTOR WILL NOT BE ENTITLED TO ANY ADDITIONAL COMPENSATION SHOULD THE STONE CIRCLE BE DELETED FROM THE CONTRACT.

0 20 40 60 FT
HORIZONTAL SCALE
1" = 20' SCALE BAR

0 4 8 12 FT
VERTICAL SCALE
1" = 4' SCALE BAR

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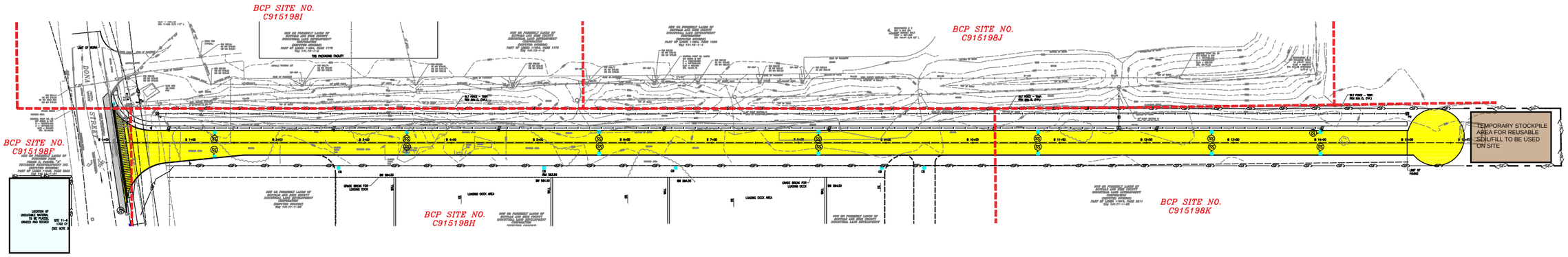
ECIDA/ILDE 95 Perry Street, Suite 403 Buffalo, New York 14203	Sheet No.
	Date Feb. 2022
RENAISSANCE COMMERCE PARK - PUBLIC ROAD B	Scale As Noted
GENERAL PLAN AND PROFILE	DWG. PL-3



LEGEND

- ROAD B WORK AREA
- TEMPORARY REUSABLE SOIL/FILL STAGING AREA

60 0 60

SCALE IN FEET

WARNING

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NO.	DATE	DESCRIPTION

REVISIONS

LiRo Engineers, Inc.
690 Delaware Avenue
Buffalo, New York

PROJ. ENG.:
DESIGNED BY:
CHECKED BY:
DRAWN BY:

CLIENT:
ECIDA/ILDE
95 PERRY STREET, SUITE 403
BUFFALO, NEW YORK 14203

DATE: JUNE 2022

SCALE: AS SHOWN

JOB TITLE AND LOCATION:
RENAISSANCE COMMERCE PARK
PUBLIC ROAD B

DRAWING TITLE:
PROPOSED TEMPORARY STAGING AREA

LIRO JOB NO.: 21–220–0135

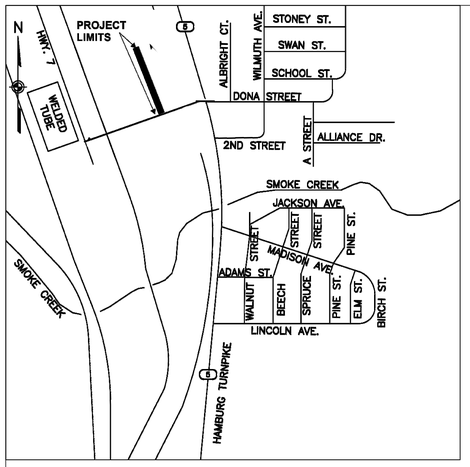
SHEET OF

FIGURE NO.
2-2

V:\ECIDA\21-220-0135 ECIDA - Former Bethlehem Steel Road B\Design\Brownfield Areas\Road B Brownfield Areas.dwg 6/13/2022 1:23 PM

Appendix 1

Plans for the Construction of the Renaissance Commerce Park Public Road



Location Map
Not to Scale

INDUSTRIAL LAND DEVELOPMENT CORPORATION

A Member of the ECIDA Financing and Development Group

Plans for the Construction of the Renaissance Commerce Park- Public Road B, beginning at Dona St. Extension Project # F-A 8-19-21

City of Lackawanna
County of Erie
State of New York

Design Traffic Data				Design Criteria		
Description	Design Class	Year	ADT	Design Class	Design Speed	Actual Maxium Grade
Road B	Local	2022	60 (est.)	Local	mph	1.12%

Renaissance Commerce Park-
Public Road B Project #
Sheet Number 1 of 31

Type of Construction
New pavement construction (Full Depth) 0.21 miles of the Renaissance Commerce Park - Public Road B. Work also includes, drainage, sidewalks, street light, utility trench and other appurtenances.

Specifications
All work performed under this contract is to be in conformance with the Standard Specifications for Construction and Materials of New York State Department of Transportation, dated January 1, 2022, (English), including current additions and modifications, as well as those made by the Erie County Department of Public Works, Division of Highways, except as modified by these plans, the itemized proposal and the instruction to bidder.

NYSDOT Standard Sheets
203-01, 05
209-01, 03, 05
604-02
608-01
609-03
609-01, 02, 10, 11, 12, 20, 30, 50, 60, 61
625-01
645-01, 02, 03
646-11, 13, 14
655-04
664-01
680-01, 02, 04, 05, 08, 11, 13, 14
685-01

Notice
Project manuals, drawings and construction documents are intended specifically for the preparation of Bid Proposals and for construction related activity. By accepting these documents and drawings, the individual, company or agency acknowledges that these documents and drawings relate to facilities wherein sensitive and secure governmental activities are conducted. The individual's, company's or agency's misuse of these documents and drawings may threaten the safety and security of governmental operations. By accepting these documents and drawings, the individual, company or agency, agrees that it shall restrict dissemination of such materials to recognized, legitimate sub-contractors, suppliers and material men solely for their use in preparation of quotes, bids or participation in actual construction activity. Further, by accepting these documents and drawings, the individual, company or agency assumes full responsibility for and liability for said individual's, company's or agency's negligence and for its careless or wrongful distribution of Erie County project manuals, drawings and construction documents.

Warning
It is a violation of the New York State Education Law for any person unless acting under the direction of a Licensed Professional Engineer, to alter any item in these plans in any way. If alterations to these plans are required, the alterations shall be made in accordance with Article 145 - Subsection 7209 of the New York State Education Law.

Prepared and Recommended By

Michael F. Lydle, P.E. — Date

Recommended for Approval — Date

Recommended for Approval — Date

Recommended for Approval — Date

Approved By

John Cappelino — Date
CEO/President
Buffalo and Erie County Industrial Land Development Corporation/ECIDA

FoitAlbert ASSOCIATES
Architecture, Engineering, Surveying.
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ECIDA/ILDE 95 Perry Street, Suite 403 Buffalo, New York 14203	Sheet No.
	Date
Renaissance Commerce Park Public Road B	Scale
Title Sheet	Dwg. No: TL-1

INTERIM EXCAVATION WORK PLAN NOTES:

1. ALL EXCAVATION WORK ASSOCIATED WITH THIS PROJECT SHALL BE IN ACCORDANCE WITH THE INTERIM EXCAVATION WORK PLAN FOR PHASE II BUSINESS PARK AREA, LACKAWANNA, NEW YORK DATED FEBRUARY 2013, REVISED MARCH 2013.

2. THE INTERIM EXCAVATION WORK PLAN (EWP) HAS BEEN PREPARED BY TURNKEY ENVIRONMENTAL RESTORATION LLC IN ACCORDANCE WITH THE NYSDEC PROGRAM POLICY DER–10, SECTION 6.1(b), INTERIM SITE MANAGEMENT. THE INTERIM EWP WILL BE FOLLOWED DURING ALL GROUND INTRUSIVE ACTIVITIES CONDUCTED DURING THE SITE PREPARATION WORK INCLUDING EXCAVATING FOR UTILITY LINES, GRADING WORK, AND GENERAL SITE WORK.

3. AT LEAST 15 DAYS PRIOR TO THE START OF ANY ACTIVITY THAT IS ANTICIPATED TO ENCOUNTER REMAINING CONTAMINATION, THE CONTRACTOR WILL NOTIFY THE NYSDEC. NOTIFICATION WILL BE MADE TO MR. MAURICE MOORE, ENGINEERING GEOLOGIST I, NYSDEC – REGION 9, 270 MICHIGAN AVENUE, BUFFALO, NY 14203–2999.

4. NOTIFICATION SHALL INCLUDE;

   a. A DETAILED DESCRIPTION OF THE WORK TO BE PERFORMED INCLUDING THE LOCATION AND AERIAL EXTENT; PLANS FOR SITE RE–GRADING, INTRUSIVE ELEMENTS OR UTILITIES TO BE INSTALLED BELOW THE SOIL COVER; ESTIMATED VOLUMES OF CONTAMINATED SOIL TO BE EXCAVATED; AND ANY WORK THAT MAY IMPACT AN EXISTING ENGINEERING CONTROL. APPROPRIATE LOCATIONS FOR STAGING AND STOCKPILING OF NON–IMPACTED SOIL/FILL MATERIAL WILL ALSO BE IDENTIFIED.

   b. A SUMMARY OF ENVIRONMENTAL CONDITIONS ANTICIPATED IN THE WORK AREAS, INCLUDING THE NATURE AND CONCENTRATION LEVELS OF CONTAMINANTS OF CONCERN, POTENTIAL PRESENCE OF GROSSLY CONTAMINATED MEDIA, AND PLANS FOR ANY PRE–CONSTRUCTION SAMPLING.

   c. A SCHEDULE FOR THE WORK, DETAILING THE START AND COMPLETION OF ALL INTRUSIVE WORK.

   d. A SUMMARY OF THE APPLICABLE COMPONENTS OF THE INTERIM EWP.

   e. A STATEMENT THAT THE WORK WILL BE PERFORMED IN COMPLIANCE WITH THIS INTERIM EWP AND 29 CFR 1910.120.

   f. A COPY OF THE CONTRACTOR'S HEALTH AND SAFETY PLAN, IN ELECTRONIC FORMAT, IF IT DIFFERS FROM THE SITE–WIDE HASP.

   g. IDENTIFICATION OF DISPOSAL FACILITIES FOR POTENTIAL WASTE STREAMS.

   h. IDENTIFICATION OF SOURCES OF ANY ANTICIPATED BACKFILL, ALONG WITH ALL REQUIRED ANALYTICAL TESTING RESULTS.

SOIL SCREENING AND SEGREGATION METHODS:

1. VISUAL, OLFACTORY, AND/OR INSTRUMENT (PHOTOIONIZATION DETECTOR OR EQUIVALENT) BASED, SOIL SCREENING WILL BE PERFORMED BY A QUALIFIED ENVIRONMENTAL PROFESSIONAL (QEP), AS DEFINED BY NYSDEC IN DER–10 SECTION1.3(b)49, DURING ALL INTRUSIVE ACTIVITIES.

2. IF FIELD EVIDENCE OF POTENTIALLY IMPACTED SOIL/FILL IS ENCOUNTERED DURING INTRUSIVE WORK, THE NYSDEC PROJECT MANAGER SHALL BE CONTACTED AND THE CONTRACTOR WILL BE DIRECTED TO STOCKPILE THE MATERIAL ON POLYETHYLENE SHEETING IN AN ACCEPTABLE LOCATION NEAR THE IMPACTED AREA. THE LOCATION OF THE STAGED, MATERIALS SHALL BE COORDINATED WITH THE OWNER, BUT SHALL REMAIN WITHIN THE SAME BUSINESS PARK SITE AS THE SOURCE. PAID FOR UNDER ITEM 205.0201.

STOCKPILE METHODS:

1. EXCAVATED OILS SHALL BE SEGREGATED, BASED ON FIELD SCREENING AND ITS STATUS AT THE TIME OF THE EXCAVATION WORK, INTO MATERIAL THAT CAN BE REUSED AS COVER SOIL, NON–IMPACTED MATERIAL THAT CAN BE RETURNED TO THE SUBSURFACE, AND IMPACTED MATERIAL THAT REQUIRES TREATMENT OR OFF–SITE DISPOSAL. A CONTINUOUS BERM AND/OR SILT FENCE WILL BE PLACED AROUND SOIL/FILL STOCKPILES. HAY BALES WILL BE USED AS NEEDED NEAR CATCH BASINS,SURFACE WATERS, AND OTHER DISCHARGE POINTS. STOCKPILES WILL BE COVERED AT ALL TIMES WITH APPROPRIATELY ANCHORED TARPS OR POLY SHEETING. STOCKPILES WILL BE ROUTINELY INSPECTED AT A MINIMUM ONCE A WEEK AND AFTER EVERY STORM EVENT. DAMAGED TARP COVERS WILL BE PROMPTLY REPLACED. PAID FOR UNDER ITEM 205.0201.

MATERIAL EXCAVATION AND LOAD OUT:

1. A QEP, OR PERSON UNDER THEIR SUPERVISION, WILL MONITOR ALL INTRUSIVE WORK AND THE EXCAVATION AND LOAD–OUT OF ALL EXCAVATED MATERIAL.

2. LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE SHALL BE INSPECTED DAILY FOR EVIDENCE OF OFF–SITE TRACKING. THE QEP WILL BE RESPONSIBLE FOR ENSURING THAT ALL EGRESS POINTS FOR TRUCK AND EQUIPMENT TRANSPORT FROM THE SITE ARE CLEAN OF DIRT AND OTHER MATERIALS DERIVED FROM THE SITE DURING INTRUSIVE EXCAVATION ACTIVITIES.

MATERIAL REUSE ON–SITE:

1. ON–SITE REUSE OF SOIL/FILL MATERIAL, INCLUDING SLAG MATERIALS, IS ACCEPTABLE PROVIDED THAT THE MATERIAL DOES NOT EXHIBIT VISUAL OR OLFACTORY EVIDENCE OF CONTAMINATION AND PHOTOIONIZATION DETECTOR (PID) MEASUREMENTS OF THE ATMOSPHERE AT THE SOIL/FILL INTERFACE DO NOT EXCEED 5 PARTS PER MILLION (PPM) ABOVE BACKGROUND. SLAG MATERIAL SHALL BE REUSED AS ROAD FILL MATERIAL BETWEEN CURB LINES. AS APPROVED BY THE EIC.

2. THE QEP WILL ENSURE THAT PROCEDURES DEFINED FOR MATERIALS REUSE ARE FOLLOWED.

3. ON–SITE MATERIAL, INCLUDING HISTORIC FILL, THAT IS ACCEPTABLE FOR RE–USE ON–SITE WILL BE PLACED BELOW THE ENGINEERED COVER DEMARCATION LAYER OR IMPERVIOUS SURFACE AND WILL NOT BE REUSED WITHIN THE COVER SOIL LAYER,WITHIN LANDSCAPING BERMS, OR AS BACKFILL FOR SUBSURFACE UTILITY LINES.

4. EXCAVATED MATERIAL SHALL BE SPREAD AT NYSDEC DESIGNATED SITE. ALL MATERIAL SHALL BE GRADED TO BLEND IN WITH SURROUNDING AREA. WITHIN 1 WEEK OF ROUGH GRADING, THE SITE TOP MATERIAL SHALL BE MECHANICALLY LOOSEN AND SEEDED. COST OF SEEDING WILL BE ITEM 209.1003.

DEBRIS:

1. CONCRETE CRUSHING OR PROCESSING ON–SITE WILL NOT BE PERFORMED WITHOUT PRIOR NYSDEC APPROVAL. ORGANIC MATTER (WOOD, ROOTS, STUMPS,ETC.) OR OTHER SOLID WASTE DERIVED FROM THE CLEARING AND GRUBBING OF THE SITE SHALL NOT BE REUSED ON–SITE WITHOUT PRIOR NYSDEC APPROVAL.

FLUID MANAGEMENT:

1. ALL LIQUIDS TO BE REMOVED FROM THE SITE, INCLUDING EXCAVATION DE–WATERING AND TRUCK WASH WATER, WILL BE VERIFIED BY QEP TO BE VISUALLY FREE OF ANY PRODUCT, NON–AQUEOUS PHASE LIQUID, ODOR, OR OTHER VISUAL INDICATIONS OF IMPACT. COST OF FLUIDS REMOVAL AND DISPOSAL TO BE PAID FOR UNDER ITEM697.03. IN SUCH INSTANCE IT MAY BE ACCEPTABLE TO DISCHARGE SUCH WATER BACK TO SUB GRADE WITH PRIOR NYSDEC APPROVAL. GENERATED WATER EXHIBITING SIGNS OF IMPACT WILL NOT BE RECHARGED BACK TO THE LAND SURFACE OR SUBSURFACE OF THE SITE UNLESS TREATED TO RENDER IT ACCEPTABLE FOR DISCHARGE AS APPROVED BY THE NYSDEC.

COVER MATERIALS:

1. A MINIMUM OF 12 INCHES OF NYSDEC APPROVED COVER MATERIAL SHALL BE PLACED OVER ANY UNPAVED AREAS OF THE SITE AS A COMPONENT OF THE FINAL REMEDY. THE UPPER 6 INCHES OF ANY SOIL COVER MUST BE SUITABLE QUALITY TO SUPPORT VEGETATION IN GENERAL, THIS WOULD BE A WELL–GRADED TOPSOIL WITH A Ph OF 5.5 TO 7.6, A MINIMUM ORGANIC CONTENT OF 2.5%, AND A SOLUBLE SALE CONTENT NOT GREATER THAN 500 ppm.

2. THE DEMARCATION LAYER SHALL BE PLACED TO PROVIDE A VISUAL REFERENCE TO THE TOP OF THE REMAINING IN–PLACE MATERIAL.

BACKFILL FROM OFF–SITE SOURCES:

1. OFF–SITE SOIL/ FILL MAY BE USED AS BACKFILL PROVIDED THAT IT ORIGINATES FROM;

   a. AN NYSDEC APPROVED BORROW SITE; OR

   b. A KNOWN SOURCE HAVING NO EVIDENCE OF DISPOSAL OR RELEASES OF HAZARDOUS SUBSTANCES, HAZARDOUS, TOXIC OR RADIOACTIVE WASTES, OR PETROLEUM.

2. IN BOTH INSTANCES THE IMPORTED SOIL MUST BE TESTED AND DEMONSTRATED TO MEET THE CRITERIAL SHOWN ON TABLE 1 IN ACCORDANCE WITH APPENDIX 5 OF DER–10. IN ADDITION, NO OFF–SITE MATERIALS MEETING THE DEFINITION OF A SOLID WASTE AS DEFINED IN 6 NYCRR, PART 360–12 (a) SHALL BE USED AS BACKFILL THE CRITERIAL PRESENTED IN TABLE 1 REPRESENTS THE LESSER OF THE COMMERCIAL SOIL CLEANUP OBJECTIVES (SCO's) OR LEVELS OF GROUNDWATER QUALITY AS PUBLISHED IN 6NYCRR PART 375–6.7(d)® AND 375–6.8. COST TO TESTING TO BE INCLUDED IN ENVIRONMENTAL ITEMS.

3. CERTAIN MATERIAL MAY BE IMPORTED AS BACKFILL, WITHOUT CHEMICAL TESTING,PROVIDED IT CONTAINS LESS THAN 10% (BY WEIGHT) MATERIAL THAT WOULD PASS THROUGH A SIZE 80 SIEVE:

   a. ROCK OR STONE, CONSISTING OF VIRGIN MATERIAL FROM A PERMITTED QUARRY

   b. STEEL SLAG UNDER BENEFICIAL USE DETERMINATION

   c. RECYCLED CONCRETE, BROCK, OR ASPHALT FROM A NYSDEC REGISTERED OR PERMITTED C&D DEBRIS PROCESSING FACILITY THAT CONFORMS TO SECTION 304 OF THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS OF CONSTRUCTION AND MATERIALS VOLUME 1.

4. SOILS THAT MEET THE "EXEMPT" FILL REQUIREMENTS UNDER 6 NYCRR PART 360, BUT DO NOT MEET BACKFILL OR COVER SOIL OBJECTIVES FOR THIS SITE, WILL NOT BE IMPORTED ONTO THE SITE WITHOUT PRIOR APPROVAL BY NYSDEC.

5. ALL MATERIALS PROPOSED FOR IMPORT ONTO THE SITE SHALL BE APPROVED BY THE QEP AND IN COMPLIANCE WITH THE PROVISIONS OF THE INTERIM EQP PRIOR TO RECEIPT AT THE SITE.

CONTINGENCY PLAN:

1. IF UNDERGROUND TANKS OR OTHER PREVIOUSLY UNIDENTIFIED CONTAMINANT SOURCES ARE FOUND DURING INTRUSIVE ACTIVITIES, EXCAVATION ACTIVITIES WILL BE SUSPENDED UNTIL SUFFICIENT EQUIPMENT IS MOBILIZED TO ADDRESS THE CONDITION.

2. SAMPLING WILL BE PERFORMED ON PRODUCT, SEDIMENT, AND SURROUNDING SOILS AS NECESSARY TO DETERMINE THE NATURE OF THE MATERIAL AND PROPER DISPOSAL METHOD. CHEMICAL ANALYSIS WILL BE PERFORMED FOR A COMPREHENSIVE LIST OF ANALYTES (RCRA METALS, TCL, VOCs, SVOCs AND PCBs, AND CYANIDE), UNLESS THE SITE HISTORY AND PREVIOUS SAMPLING RESULTS PROVIDE A SUFFICIENT JUSTIFICATION TO LIMIT THE LIST OF ANALYTES. SAMPLING TO BE PAID FOR UNDER ITEM 205.0402.

3. IDENTIFICATION OF UNKNOWN OR UNEXPECTED CONTAMINATED MEDIA IDENTIFIED BY SCREENING DURING INTRUSIVE ACTIVITIES WILL BE PROMPTLY COMMUNICATED BY PHONE TO NYSDEC'S PROJECT MANAGER. REPORTABLE QUANTITIES OF PETROLEUM PRODUCT WILL BE REPORTED TO NYSDEC SPILLS HOTLINE. DISPOSAL COSTS WILL BE PAID FOR UNDER ITEM 205.0502 DISPOSAL OF NON–HAZARDOUS WASTE SOIL.

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SITE MANAGEMENT NOTES:

CONTRACTOR SHALL COMPLY WITH REQUIREMENTS OF THE FOLLOWING SITE MANAGEMENT PLANS (SMPS) AVAILABLE FROM: ANDREW ZWACK, ASSISTANT ENGINEER, NYSDEC–REGION 9, 270 MICHIGAN AVENUE, BUFFALO, NY 14203. OFFICE: 716.851.7226

a. BROWNFIELD CLEANUP PROGRAM, SITE MANAGEMENT PLAN, TECUMSEH PHASE I BUSINESS PARK, NYSDEC SITE NUMBERS: C915197 THROUGH C915197k, LACKAWANNA, NEW YORK, JANUARY 2014

b. BROWNFIELD CLEANUP PROGRAM, SITE MANAGEMENT PLAN, TECUMSEH PHASE II BUSINESS PARK, NYSDEC SITE NUMBERS C915198 THROUGH C915198L. LACKAWANNA, NEW YORK, JANUARY 2014

THE SMPS STATE THAT EXPOSURE TO REMAINING CONTAMINATION IN SOIL/FILL WILL BE PREVENTED BY A COVER SYSTEM. THE COVER SYSTEM IS TO BE COMPRISED OF A MINIMUM OF 12 INCHES OF CLEAN SOIL, STONE OR NYSDEC–APPROVED MATERIALS, WITH A DEMARCATION LAYER (I.E. GEOTEXTILE FABRIC, ORANGE POLY NETTING, OR SIMILAR NONDEGRADABLE VISUAL DEMARCATION) IN ALL AREA THAT ARE NOT PAVED OR COVERED BY CONCRETE OR STRUCTURES. AREAS WITHIN THE RIGHT –OF–WAY WILL INCLUDE A COVER SYSTEM COMPLYING WITH THE SMPS.

THE EXCAVATION WORK PLANS FROM THE SMPS, DEFINE THE SCREENING, SEGREGATION, STOCKPILING, FLUID MANAGEMENT, EXCAVATION, TRANSPORTATION,DISPOSAL AND REUSE REQUIREMENTS TO MANAGE SOIL/FILL ON THE BCP PROPERTY.

AN UNDERDRAIN WILL BE INSTALLED AS SHOWN ON THE PLAN, THE UNDERDRAIN WILL DISCHARGE TO THE STORMWATER SEWER SYSTEM IN THE PROJECT VICINITY.GIVEN THE KNOWN AND SUSPECTED ENVIRONMENTAL HISTORY OF THE PROJECT SITE ALL MATERIALS EXCAVATED FROM THE UNDERDRAIN TRENCH SHALL BE HANDLED IN ACCORDANCE WITH THE SMPS. ADDITIONALLY, THE TRENCH SHOULD BE LINED WITH A FABRIC FILTER AND ALL BACKFILL MATERIALS SHALL BE CLEAN OFF–SITE MATERIALS. NO ON–SITE MATERIALS SHALL BE USED IN THE BACKFILL OF THE UNDERDRAIN TRENCH.

THE SMPS NOTE THE ABSENCE OF GROUNDWATER IN THE UPPER 4–FEET OF THE OVERBURDEN SOILS IN THE AREA OF THE SITE AS WELL AS THE ABSENCE OF LEACHABLE CONTAMINANTS IN THE SURROUNDING SOIL/FILL (BASED ON TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP)) SAMPLES COLLECTED AT THE SITE AS REFERENCED IN THE SMPS.

CONSTRUCTION:

STAKEOUT AND CRITICAL GRADING DOCUMENTATION – THE CONSTRUCTION STAKEOUT AND THE CRITICAL GRADING DOCUMENTATION SHALL BE PERFORMED BY A LICENSED LAND SURVEYOR.

COORDINATION – THE CONTRACTOR SHALL COORDINATE ALL UTILITY WORK TO AVOID ANY POTENTIAL CONFLICTS

STAGING – THE CONTRACTOR SHALL PROVIDE A SECURE STAGING AREA FOR STORAGE OF EQUIPMENT, MATERIALS, EMPLOYEE PARKING AND OFFICE SPACE.

STREAM – THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER AS TO PREVENT OR REDUCE A MINIMUM AN DAMAGE TO ANY STREAM FROM POLLUTION BY DEBRIS, SEDIMENT OR OTHER FOREIGN MATERIAL AND/OR FROM MANIPULATION OF EQUIPMENT AND/OR MATERIALS IN OR NEAR SUCH STREAMS.THE CONTRACTOR SHALL NOT RETURN DIRECTLY TO A STREAM ANY WATER WHICH AS BEEN USED FOR WASH PURPOSES OR OTHER SIMILAR OPERATIONS WHICH CAUSE THIS WATER TO BECOME POLLUTED WITH SAND, SILT, CEMENT, OIL, OR OTHER IMPURITIES. IF THE CONTRACTOR USES WATER FROM A STREAM, THE CONTRACTOR SHALL CONSTRUCT AN INTAKE OR TEMPORARY DAM REQUIRED TO PROTECT AND MAINTAIN WATER RIGHTS AND TO SUSTAIN FISH LIFE DOWNSTREAM.

CLOSE–OUT – LIMITED TO THE FOLLOWING AT PROJECT CLOSE–OUT TO THE SATISFACTION OF THE ENGINEER AND THE OWNER

* REMOVAL OF ALL CONSTRUCTION DEBRIS.
* CLEANING PAVEMENT AND WALKWAY SURFACES.
* RESTORATION OF ALL DISTURBED GRASS AND LANDSCAPE AREAS.
* PROVIDING BONDS, GUARANTEES, CERTIFICATIONS, AS REQUIRED BY CONTRACT DOCUMENTS.
* COMPLETION OF FINAL PUNCH LIST ITEMS.
* COMPLETE A MINIMUM OF ONE MOWING PRIOR TO FINAL INSPECTION. ADDITIONAL MOWING MAY BE ORDERED IF ROADSIDE VEGETATION BECOMES UNSIGHTLY AS DETERMINED BY THE EIC.

INVASIVE SPECIES NOTES:

THE CONTRACTOR SHALL TAKE ALL PRUDENT AND REASONABLE EFFORTS TO SELECT STAGING AREAS THAT ARE FREE FROM THE INFESTATION OF THE FOLLOWING INVASIVE PLANTS SPECIES: PHRAGMITES (PHRAGMITES AUSTRALIS), JAPANESE KNOTWEED (POLYGONUM CUSPIDATUM), PURPLE LOOSESTRIEF (LYNTHRUM SALICARIA), AND GIANT HOGWEED (HERACLEUM MANTEGAZZIANUM).

IF INVASIVE PLANT SPECIES ARE IN CLOSE PROXIMITY TO STAGING OPERATIONS,THE CONTRACTOR SHALL TAKE THE NECESSARY STEPS TO ASSURE THAT NO INVASIVE SPECIES PLANT PARTS COME IN CONTACT WITH CONSTRUCTION VEHICLES, EQUIPMENT, AND MATERIALS.

IF CONTACT IS UNAVOIDABLE, AS PER SECTION 107–01A INVASIVE SPECIES OF THE STANDARD SPECIFICATIONS. THE CONTRACTOR IS RESPONSIBLE FOR CLEANING THE INFECTED EQUIPMENT TO REMOVE ALL INVASIVE PLANT PARTS PRIOR TO THAT EQUIPMENT LEAVING THE STAGING AREA. THIS PROCEDURE IS REQUIRED IN ORDER MINIMIZE THE POSSIBILITY OF TRANSPORTING THE INVASIVE PLANT SPECIES OFF THE IMMEDIATE STAGING AREA AND ONTO STATE HIGHWAYS OR THE PROJECT SITE. REFER TO EI 09–002 AND USE ITEM 617.11000024, EQUIPMENT CLEANING FOR INVASIVE PLANT SPECIES, TO HELP ENSURE NO PLANT PARTS LEAVE THE JOB SITE.

INTERIM EXCAVATION WORK PLAN NOTES:

1. ALL EXCAVATION WORK ASSOCIATED WITH THIS PROJECT SHALL BE IN ACCORDANCE WITH THE INTERIM EXCAVATION WORK PLAN FOR THE PHASE II BUSINESS PARK AREA, LACKAWANNA, NEW YORK DATED FEBRUARY 2013, REVISED MARCH 2013.

2. THE INTERIM EXCAVATION WORK PLAN (EWP) HAS BEEN PREPARED BY TURNKEY ENVIRONMENTAL RESTORATION LLC IN ACCORDANCE WITH THE NYSDEC PROGRAM POLICY DER–10, SECTION 6.1(b), INTERIM SITE MANAGEMENT. THE INTERIM EWP WILL BE FOLLOWED DURING ALL GROUND INTRUSIVE ACTIVITIES CONDUCTED DURING THE SITE PREPARATION WORK INCLUDING EXCAVATING FOR UTILITY LINES, GRADING WORK, AND GENERAL SITE WORK.

3. AT LEAST 15 DAYS PRIOR TO THE START OF ANY ACTIVITY THAT IS ANTICIPATED TO ENCOUNTER REMAINING CONTAMINATION, THE CONTRACTOR WILL NOTIFY THE NYSDEC. NOTIFICATION WILL BE MADE TO ANDREW ZWACK, ASSISTANT ENGINEER, NYSDEC – REGION 9, 270 MICHIGAN AVENUE, BUFFALO, NY 14203–2999.

4. NOTIFICATION SHALL INCLUDE;

   a. A DETAILED DESCRIPTION OF THE WORK TO BE PERFORMED INCLUDING THE LOCATION AND AREA EXTENT; PLANS FOR SITE RE–GRADING, INTRUSIVE ELEMENTS OR UTILITIES TO BE INSTALLED BELOW THE SOIL COVER; ESTIMATED VOLUMES OF CONTAMINATED SOIL TO BE EXCAVATED; AND ANY WORK THAT MAY IMPACT AN EXISTING ENGINEERING CONTROL. APPROPRIATE LOCATIONS FOR STAGING AND STOCKPILING OF NON–IMPACTED SOIL/FILL MATERIALS WILL ALSO BE IDENTIFIED.

   b. A SUMMARY OF ENVIRONMENTAL CONDITIONS ANTICIPATED IN THE WORK AREAS, INCLUDING THE NATURE AND CONCENTRATION LEVELS OF CONTAMINANTS OF CONCERN, POTENTIAL PRESENCE OF GROSSLY CONTAMINATED MEDIA, AND PLANS FOR ANY PRE–CONSTRUCTION SAMPLING.

   c. A SCHEDULE FOR THE WORK, DETAILING THE START AND COMPLETION OF ALL INTRUSIVE WORK.

   d. A SUMMARY OF THE APPLICABLE COMPONENTS OF THE INTERIM EWP.

   e. A STATEMENT THAT THE WORK WILL BE PERFORMED IN COMPLIANCE WITH THIS INTERIM EWP AND 29 CFR 1910.120.

   f. A COPY OF THE CONTRACTOR'S HEALTH AND SAFETY PLAN, IN ELECTRONIC FORMAT, IF IT DIFFERS FROM THE SITE–WIDE HASP.

   g. IDENTIFICATION OF DISPOSAL FACILITIES FOR POTENTIAL WASTE STREAMS.

   h. IDENTIFICATION OF SOURCES OF ANY ANTICIPATED BACKFILL, ALONG WITH ALL REQUIRED ANALYTICAL TESTING RESULTS.

SOIL SCREENING SEGRATION METHODS:

1. VISUAL, OLFACTYORY, AND/OR INSTRUMENT (PHOTOIONIZATION DETECTOR OR EQUIVALENT) BASED, SOIL SCREENING WILL BE PERFORMED BY A QUALIFIED ENVIRONMENTAL PROFESSIONAL (QEP), AS DEFINED BY NYSDEC IN DER–10 SECTION 1.3(b)49, DURING ALL INTRUSIVE ACTIVITIES.

2. IF FIELD EVIDENCE OF POTENTIALLY IMPACTED SOIL/FILL IS ENCOUNTERED DURING INTRUSIVE WORK, THE NYSDEC PROJECT MANAGER SHALL BE CONTACTED AND THE CONTRACTOR WILL BE DIRECTED TO STOCKPILE THE MATERIAL ON POLYETHYLENE SHEETING IN AN ACCEPTABLE LOCATION NEAR THE IMPACTED AREA. THE LOCATION OF STAGED, MATERIALS SHALL BE COORDINATED WITH THE OWNER, BUT SHALL REMAIN WITHIN THE SAME BUSINESS PARK SITE WHERE SOIL LAYDOWN AREA FOR PUBLIC ROAD B HAS BEEN ESTABLISHED. PAID FOR UNDER ITEM 205.0201.

STOCKPILE METHODS:

1. STOCKPILE SOILS SHALL BE SEGRAGATED BASED ON FIELD SCREENING AND ITS STATUS AT THE TIME OF THE EXCAVATION WORK, INTO MATERIAL THAT CAN BE USED AS POTENTIAL COVER MATERIAL (NON–IMPACTED MATERIAL THAT CAN BE RETURNED TO THE SUBSURFACE AT PARCEL II–6, ONLY AFTER TESTING AND/OR APPROVAL BY NYSDEC) OR IMPACTED MATERIAL THAT REQUIRES TREATMENT OF OFF–SITE DISPOSAL.

2. A CONTINUOUS BERM AND/OR SILT FENCE WILL BE PLACED AROUND SOIL/FILL STOCKPILES. HAY BALES WILL BE USED AS NEEDED NEAR CATCH BASINS, SURFACE WATERS, AND OTHER DISCHARGE POINTS. STOCKPILES WILL BE COVERED AT ALL TIMES WITH APPROPRIATELY ANCHORED TARPS OR POLY SHEETING. STOCKPILES WILL ROUTINELY INSPECTED AT A MINIMUM ONCE A WEEK AND AFTER STORM EVENT. DAMAGED TARP COVERS WILL BE PROMPTLY REPLACED. PAID UNDER ITEM 205.0201.

MATERIAL EXCAVATION AND LOAD OUT:

1. A QEP, OR PERSON UNDER THEIR SUPERVISION, WILL MONITOR ALL INTRUSIVE WORK AND THE EXCAVATION AND LOAD–OUT OF ALL EXCAVATED MATERIALS.

2. LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE SHALL BE INSPECTED DAILY FOR EVIDENCE OF OFF–SITE TRACKING. THE QEP WILL RE RESPONSIBLE FOR ENSURING THAT ALL EGRESS POINTS FOR TRUCK AND EQUIPMENT TRANSPORT FROM THE SITE ARE CLEAN OF DIRT AND OTHER MATERIALS DERIVED FROM THE SITE DURING INTRUSIVE EXCAVATION ACTIVITIES.

MATERIAL REUSE ON–SITE:

1. ON–SITE REUSE OF SOIL/FILL MATERIAL, INCLUDING SLAG MATERIALS, IS ACCEPTABLE PROVIDED THAT THE MATERIAL DOES NOT EXHIBIT VISUAL OR OLFACTORY EVIDENCE OF CONTAMINATION AND PHOTOIONIZATION DETECTOR (PID) MEASUREMENTS OF THE ATMOSPHERE AT THE SOIL/FILL INTERFACE DO NOT EXCEED 5 PARTS PER MILLION (PPM) ABOVE BACKGROUND. SLAG MATERIAL SHALL NOT BE REUSED AS ROAD FILL MATERIAL BETWEEN CURB LINES.

2. THE QEP WILL ENSURE THAT PROCEDURES DEFINED FOR MATERIALS REUSE ARE FOLLOWED.

3. ON–SITE MATERIAL, INCLUDING HISTORIC FILL, THAT IS ACCEPTABLE FOR RE–USE ON–SITE WILL BE PLACED BELOW THE ENGINEERED COVER DEMARCATION LAYER OR IMPERVIOUS SURFACE AND WILL NOT RE REUSED WITHIN THE COVER SOIK LAYER, WITHIN LANDSCAPING BERMS, OR AS BACKFILL FOR SUBSURFACE UTILITY LINES.

4. EXCAVATED MATERIAL SHALL BE SPREAD NEAR THE EXCAVATION WITHIN THE SAME BUSINESS PARK SITE AS IT ORIGINATED.

DEBRIS:

1. CONCRETE CRUSHING OR PROCESSING ON–SITE WILL NOT BE PERFORMED WITHOUT PRIOR NYSDEC APPROVAL. ORGANIC MATTER (WOOD, ROOTS, STUMPS, ETC.) OR OTHER SOLID WASTE DERIVED FROM THE CLEARING AND GRUBBING OF THE SITE SHALL NOT BE REUSED ON–SITE WITHOUT PRIOR NYSDEC APPROVAL.

FLUID MANAGEMENT:

1. ALL LIQUIDS TO BE REMOVED FROM THE SITE, INCLUDING EXCAVATION DE–WATERING AND TRUCK WASH WATER, WILL BE VERIFIED BY QEP TO BE VISUALLY FREE OF ANY PRODUCT, NON–AQUEOUS PHASE LIQUID, ODOR, OR OTHER VISUAL INDICATIONS OF IMPACT. COST OF FLUIDS REMOVAL AND DISPOSAL TO BE PAID FOR UNDER ITEM 697.03. IN SUCH INSTANCE IT MAY BE ACCEPTABLE TO DISCHARGE SUCH WATER BACK TO SUBGRADE WITH PRIOR NYSDEC APPROVAL. GENERATED WATER EXHIBITING SIGNS OF IMPACT WILL NOT BE RECHARGED BACK TO THE LAND SURFACE OR SUBSURFACE OF THE SITE UNLESS TREATED TO RENDER IT ACCEPTABLE FOR DISCHARGE AS APPROVED BY THE NYSDEC.

COVER MATERIALS:

1. A MINIMUM OF 12 INCHES OF NYSDEC APPROVED COVER MATERIAL SHALL BE PLACED OVER ANY UNPAVED AREAS OF THE SITE AS A COMPONENT OF THE FINAL REMEDY. THE UPPER 6 INCHED OF ANY SOIL COVER MUST BE SUITABLE QUALITY TO SUPPORT VEGETATION. IN GENERAL, THIS WOULD BE A WELL–GRADED TOPSOIL WITH A Ph OF 5.5 TO 7.6, A MINIMUM ORGANIC CONTENT OF 2.5%, AND A SOLUBLE SALT CONTENT NOT GREATER THAN 500 ppm.

2. THE DEMARCATION LAYER SHALL BE PLACED TO PROVIDE A VISUAL REFERENCE TO THE TOP OF THE REMAINING IN–PLACE MATERIAL.

BACKFILL FROM OFF–SITE SOURCES:

1. OFF–SITE SOIL/FILL MAY BE USED AS BACKFILL PROVIDED THAT IT ORIGINATES FROM;

   a. AN NYSDEC APPROVED BORROW SITE; OR

   b. A KNOWN SOURCE HAVING NO EVIDENCE OF DISPOSAL OR RELEASES OF HAZARDOUS SUBSTANCES, HAZARDOUS, TOXIC OR RADIOACTIVE WASTES, OR PETROLEUM.

2. IN BOTH INSTANCES THE IMPORTED SOIL MUST BE TESTED AND DEMONSTRATED TO MEET THE CRITERIA SHOWN ON TABLE 1 IN ACCORDANCE WITH APPENDIX 5 OF DER–10. IN ADDITION, NO OFF–SITE MATERIALS MEETING THE DEFINITION OF A SOLID WASTE AS DEFINED IN 6 NYCRR, PART 360–12(a) SHALL BE USED AS BACKFILL THE CRITERIA PRESENTED IN TABLE 1 REPRESENTS THE LESSER OF THE COMMERCIAL SOIL CLEANUP OBJECTIVES (SCO's) OR LEVELS OF GROUNDWATER QUALITY AS PUBLISHED IN 6 NYCRR PART 675–6.7(d)(c) AND 375–6.8.

3. CERTAIN MATERIAL MAY BE IMPORTED AS BACKFILL, WITHOUT CHEMICAL TESTING, PROVIDED IT CONTAINS LESS THAN 10% (BY WEIGHT) MATERIAL THAT WOULD PASS THROUGH A SIZE 80 SIEVE:

   a. ROCK OR STONE, CONSISTING OF VIRGIN MATERIAL FROM A PERMITTED OR QUARRY.

   b. STEEL SLAG UNDER BENEFICIAL USE DETERMINATION.

4. SOILS THAT MEET THE "EXEMPT" FILL REQUIREMENTS UNDER 6 NYCRR PART 360, BUT DO NOT MEET BACKFILL OR COVER SOIL OBJECTIVES FOR THIS SITE, WILL NOT BE IMPORTED ONTO THE SITE WITHOUT PRIOR APPROVAL BY NYSDEC.

5. ALL MATERIALS PROPOSED FOR IMPORT ONTO THE SITE SHALL BE APPROVED BY THE QEP AND IN COMPLIANCE WITH THE PROVISIONS OF THE INTERIM EWP PRIOR TO RECEIPT AT THE SITE.

CONTINGENCY PLAN:

1. IF UNDERGROUND TANKS OR OTHER PREVIOUSLY UNIDENTIFIED CONTAMINANT SOURCES ARE FOUND DURING INTRUSIVE ACTIVITIES, EXCAVATION ACTIVITIES WILL BE SUSPENDED UNTIL EQUIPMENT IS MOBILIZED TO ADDRESS THE CONDITION.

2. SAMPLING WILL BE PERFORMED ON PRODUCT, SEDIMENT, AND SURROUNDING SOILS AS NECESSARY TO DETERMINE THE NATURE OF THE MATERIAL AND PROPER DISPOSAL METHOD. CHEMICAL ANALYSIS WILL BE PERFORMED FOR A COMPREHENSIVE LIST OF ANALYTES (RCRA METALS, TCL, VOCs, SCOC's, AND PCB's, AND CYANIDE), UNLESS THE SITE HISTORY AND PREVIOUS SAMPLING RESULTS PROVIDE A SUFFICIENT JUSTIFICATION TO LIMIT THE LIST OF ANALYTES. SAMPLING TO BE PAID FOR UNDER ITEM 205.0402.

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RENAISSANCE COMMERCE PARK-PUBLIC ROAD B

ITEM NO.	ITEM DESCRIPTION	PAY UNIT	EST. QUANTITY	FINAL QUANTITY
201.06	CLEARING AND GRUBBING	LS	1	
202.19	REMOVAL OF SUBSTRUCTURES	CY	376	
203.02	UNCLASSIFIED EXCAVATION AND DISPOSAL	CY	3,453	
203.03	EMBANKMENT IN PLACE	CY	7,303	
203.07	SELECT GRANULAR FILL	CY	1,083	
204.01	CONTROLLED LOW STRENGTH MATERIAL (CLSM)	CY	12	
205.0201	SEGREGATION AND STORAGE OF CONTAMINATED SOIL	LS	1	
E205.0401	CONTAMINATED SOIL ANALYSIS	EA	2	
205.0402	LABORATORY ANALYSIS FOR HAZARDOUS WASTE RCRA TOXICITY CHARACTERISTICS	EA	2	
206.0201	TRENCH AND CULVERT EXCAVATION	CY	1,483	
206.03060005	CONDUIT EXCAVATION AND BACKFILL (NOT IN ROADWAY)	LF	1,600	
206.05	TEST PIT EXCAVATION	EA	1	
207.21	GEOTEXTILE SEPARATION	SY	382	
E207.91	DEMARCATION MEMBRANE	SY	6,334	
E207.99	SUBBASE REINFORCEMENT MATERIAL, LAYER 2	SY	4,667	
209.1003	SEED AND MULCH - TEMPORARY	SY	200	
209.13	SILT FENCE - TEMPORARY	LF	3,066	
209.1702	DRAINAGE STRUCTURE INLET PROTECTION, GRAVEL BAG - TEMPORARY	CY	5	
209.22	CONSTRUCTION ENTRANCE	SY	70	
304.12	SUBBASE COURSE, TYPE 2	CY	1,465	
402.127203	12.5 F2 TOP COURSE HMA, 70 SERIES COMPACTION	TN	380	
402.197903	19 F9 BINDER COURSE HMA, 70 SERIES COMPACTION	TN	485	
402.377903	37.5 F9 BASE COURSE HMA, 70 SERIES COMPACTION	TN	705	
407.0103	STRAIGHT TACK COAT	GAL	270	
418.7603	ASPHALT PAVEMENT JOINT ADHESIVE	LF	137	
490.3	MISCELLANEOUS COLD MILLING BITUMINOUS CONCRETET	SY	100	
552.17	SHIELD AND SHORING	SF	7,930	
E555.0105	PLUGGING ABANDON PIPES	EA	4.0	
603.9815	SMOOTH INTERIOR CORRUGATED POLYETHYLENE CULVERT AND STORM DRAIN PIPE, 15 INCH DIAMETER	LF	1,484	
603.9818	SMOOTH INTERIOR CORRUGATED POLYETHYLENE CULVERT AND STORM DRAIN PIPE, 18 INCH DIAMETER	LF	688	
604.070501	ALTERING DRAINAGE STRUCTURES LEACHING BASINS AND MANHOLES	EA	1	
604.300103	DRAINAGE STRUCTURE TYPE A	LF	85.0	
605.1001	UNDERDRAIN FILTER, TYPE 2	CY	217	
605.1702	OPTIONAL UNDERDRAIN PIPE, 6 INCH DIAMETER	LF	2,930	
608.0101	CONCRETE SIDEWALKS AND DRIVEWAYS	CY	143	
608.01050405	CURB RAMP	SF	246	
608.21	EMBEDDED DETECTABLE WARNING UNITS	SY	7.0	
604.4048	ROUND PRECAST MANHOLE, TYPE 48	LF	14.0	
609.04	CAST-IN-PLACE CONCRETE CURB, (AS DETAILED)	LF	3,065	
610.1402	TOPSOIL - ROADSIDE	CY	560	
610.1601	TURF ESTABLISHMENT - ROADSIDE	SY	3,300	
614.060204	TREE REMOVAL OVER 6" TO 12" DBH STUMPS GRUBBED	EA	53	
614.060304	TREE REMOVAL OVER 12" TO 18" DBH STUMPS GRUBBED	EA	24	
614.060404	TREE REMOVAL OVER 18" TO 24" DBH STUMPS GRUBBED	EA	2	
617.11000024	EQUIPMENT CLEANING FOR INVASIVE PLANT SPECIES	LS	1	
619.01	BASIC WORK ZONE TRAFFIC CONTROL	LS	1	
619.04	CONSTRUCTION BARRICADES	LF	232	
619.0803	COVER EXISTING PAVEMENT MARKING STRIPES (REMOVABLE TAPE)	LF	860	
619.0903	TEMPORARY PAVEMENT MARKINGS STRIPES (PREFORMED TAPE)	LF	860	
625.01	SURVEY OPERATIONS	LS	1	
627.50140008	CUTTING PAVEMENT	LF	115	
637.11	ENGINEER'S FIELD OFFICE - TYPE 1	MO	6	
637.34	OFFICE TECHNOLOGY AND SUPPLIES	D-C	2,000	
645.5102	GROUND MOUNTED SIGN PANELS LESS THAN OR EQUAL 30 SF	SF	6.3	
645.81	TYPE A SIGN POSTS	EA	3	
655.0202	MANHOLE FRAME AND COVER	EA	2	
655.1103	WELDED FRAME AND RETICULINE GRATE 3	EA	14	
663.161606	TAPPING SLEEVE, VALVE AND VALVE BOX ASSEMBLY	EA	1	
663.2306	POLYETHYLENE ENCASEMENT FOR WATER PIPE, 6"	FT	12	
663.31	RELOCATE EXISTING HYDRANT	EA	1	
670.00030104	LED ROADWAY LUMINAIRE	EA	8	
670.00040205	ALUMINUM ROADWAY LIGHT STANDARD FOR TOP MTD LED FIXTURES TYPE C - NB	EA	8	
670.0105	FOUNDATION FOR LIGHT STANDARDS	CY	9	
670.2003	GALVANIZED STEEL CONDUIT	LF	115	
670.2602	RIGID PLASTIC CONDUIT - 2" DIA	LF	1,500	
670.2604	RIGID PLASTIC CONDUIT - HIGH DENSITY PE (POLYETHYLENE) 4" DIA	LF	1,400	
670.3001	PULLBOXES LESS THAN 5 CUBIC FEET, INSIDE VOLUME (LIGHTING)	EA	1	
670.60	PHOTO ELECTRIC CONTROL	EA	8	
670.7002	SINGLE CONDUIT CABLE - NUMBER 2 GAGE	LF	712	
670.7004	SINGLE CONDUIT CABLE - NUMBER 6 GAGE	LF	2,840	
670.7501	GROUND WIRE NO. 6 AWG	LF	1,420	
670.82	REMOVE LAMPPOST FOUNDATION	EA	1	
670.90	RELOCATE LAMPPOST ASSEMBLY	EA	1	
E680.51960011	FURNISH AND INSTALL CONCRETE FIBER OPTIC PULL BOX	EA	2	
680.700606	RISER ASSEMBLY, 2 INCH DIAMETER	EA	1	
683.0603005	HDPE INNERDUCT 1-1/2" ID	LF	4,220	
685.11	WHITE EPOXY REFLECTORIZED PAVEMENT STRIPES - 20 MILS	LF	1,440	
685.12	YELLOW EPOXY REFLECTORIZED PAVEMENT STRIPES - 20 MILS	LF	2,880	
697.03	FIELD CHANGE PAYMENT	D-C	1	

SHEET NO.	TITLE OF SHEET	DRAWING NO.
1	TITLE SHEET	TL- 1
2 - 3	INTERIM EXCAVATION AND SITE MANAGEMENT NOTES	AB- 1 - 2
4	ESTIMATE OF QUANTITIES	EQ- 1
5	INDEX AND ABBREVIATIONS	IN- 1
6	LEGEND LINE SYMBOLOGY	LEG- 1
7	LEGEND POINT SYMBOLOGY	LEG- 2
8	TYPICAL SECTIONS	TS- 1
9 - 11	GENERAL NOTES	GN- 1 - 3
12	TRAFFIC CONTROL PLAN	TCP 1
13	HORIZONTAL CONTROL PLAN, BASELINE TIES AND BENCHMARKS	HCP- 1
14	MAINTENANCE JURISDICTION PLAN	MJP- 1
15 - 16	MISCELLANEOUS TABLES	MST- 1 - 2
17 - 19	MISCELLANEOUS DETAILS	MSD- 1 - 3
20 - 21	EARTHWORK SUMMARY SHEETS	ESS- 1 - 2
22 - 24	EROSION AND SEDIMENT CONTROL PLAN	ECP- 1 - 3
25	EROSION AND SEDIMENT CONTROL DETAILS	ECD- 1
26 - 29	GENERAL PLAN AND PROFILE	PL- 1 - 4
30	SIGNAGE, STRIPING AND LIGHTING PLAN	SSL- 1
31	LIGHTING DETAILS	LTD- 1

ALIGNMENT

ABBR.	DESCRIPTION
AH	AHEAD
AZ	AZIMUTH
BK	BACK
℄	BASELINE
BRG	BEARING
℄	CENTERLINE
CS	CURVE TO SPIRAL
e	SUPERELEVATION RATE (CROSS SLOPE)
EQ	EQUALITY
EXT	EXTERNAL
HCL	HORIZONTAL CONTROL LINE
HSD	HEADLIGHT SIGHT DISTANCE
L	LENGTH OF CIRCULAR CURVE
LS	LENGTH OF SPIRAL
LVC	LENGTH OF VERTICAL CURVE
E	CENTER CORRECTION OF VERTICAL CURVE
f	MAIN LINE
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
POL	POINT ON LINE
PSD	PASSING SIGHT DISTANCE
PT	POINT OF TANGENT
PVC	POINT OF VERTICAL CURVE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENT
R	RADIUS
SC	SPIRAL TO CURVE
SSD	STOPPING SIGHT DISTANCE
ST	SPIRAL TO TANGENT
STA	STATION
T	TANGENT LENGTH
TGL	THEORETICAL GRADE LINE
TS	TANGENT TO SPIRAL
VC	VERTICAL CURVE

TOPOGRAPHY (DRAINAGE)

ABBR.	DESCRIPTION
BB	BOTTOM OF BANK (STREAM)
BC	BOTTOM OF CURB
BO	BOTTOM OF OPENING
CAP	CORRUGATED ALUMINUM PIPE
CB	CATCH BASIN
CIP	CAST IRON PIPE
℄ STRM	CENTERLINE OF STREAM
CMP	CORRUGATED METAL PIPE
CP	CONCRETE PIPE
CSP	CORRUGATED STEEL PIPE
CULV	CULVERT
DIA	DIAMETER
DMH	DRAINAGE MANHOLE
DS	DRAINAGE STRUCTURE PIPE
D'XING	DITCH CROSSING
EHW	EXTREME HIGH WATER
EL	ELEVATION
ELEV	ELEVATION
ELW	EXTREME LOW WATER
ES	END SECTION
HW	HEADWALL
INV	INVERT
MH	MANHOLE
MHW	MEAN HIGH WATER
OHW	ORDINARY HIGH WATER
OLW	ORDINARY LOW WATER
RCP	REINFORCED CONCRETE PIPE
SICPP	SMOOTH INTERIOR CORRUGATED POLYETHYLENE PIPE
TB	TOP OF BANK (STREAM)
TC	TOP OF CURB
TG	TOP OF GRATE
VCP	VITRIFIED CLAY PIPE

TOPOGRAPHY (MISCELLANEOUS)

ABBR.	DESCRIPTION
ABUT	ABUTMENT
AOBE	AS ORDERED BY ENGINEER
ASPH	ASPHALT
BDY	BOUNDARY
BLDG	BUILDING
BM	BENCH MARK
CC	CENTER TO CENTER
CONC	CONCRETE
CONST	CONSTRUCTION
CR	COUNTY ROAD
D	DEED DISTANCE
DM	DIRECT MEASUREMENT
DWY	DRIVEWAY
EP	EDGE OF PAVEMENT
ES	EDGE OF SHOULDER
FEE	FEE ACQUISITION
FEE WO/A	FEE ACQUISITION WITHOUT ACCESS
FP	FENCE POST
FD	FOUNDATION
FL	FENCE LINE
GAR	GARAGE
GR	GRAVEL
HO	HOUSE
HWY	HIGHWAY
IP	IRON PIN OR IRON PIPE
MB	MAILBOX
MON	MONUMENT
N&W	NAIL AND WASHER
OG	ORIGINAL GROUND
O/H	OVERHEAD
P	PARCEL
PAV'T	PAVEMENT
PE	PERMANENT EASEMENT
PED POLE	PEDESTRIAN POLE
PL	PROPERTY LINE
POR	PORCH
RR	RAILROAD
RTE	ROUTE
ROW	RIGHT OF WAY
RW	RETAINING WALL
SH	STATE HIGHWAY
SHLDR	SHOULDER
SPK	SPIKE
ST	STREET
STK	STAKE
STY	STORY
SW	SIDEWALK
TE	TEMPORARY EASEMENT
TO	TEMPORARY OCCUPANCY
U/G	UNDERGROUND
WW	WING WALL

UTILITIES

ABBR.	DESCRIPTION
E	ELECTRIC
EMH	ELECTRIC MANHOLE
G	GAS
GP	GUY POLE
GSB	GAS SERVICE BOX (HOUSE LINE)
GV	GAS VALVE (MAIN LINE)
HYD	HYDRANT
LP	LIGHT POLE
LPG	LOW PRESSURE GAS
PP	POWER POLE
SA	SANITARY SEWER
SMH	SANITARY MANHOLE
ST	STORM SEWER
T	TELEPHONE
TCB	TRAFFIC CONTROL BOX
TELBOX	TELEPHONE BOX
TEL P	TELEPHONE POLE
TMH	TELEPHONE MANHOLE
CTV	CABLE TELEVISION
W	WATER
WSB	WATER SERVICE BOX (HOUSE LINE)
WV	WATER VALVE (MAIN LINE)

SUBSURFACE EXPLORATION

ABBR.	DESCRIPTION
	REPLACE ABBREVIATION "AB" WITH:
AH	HAND AUGER
CP	CONE PENETROMETER
DA	2? INCHES CASED DRILL HOLE
DM	DRILLING MUD
DN	4 INCHES CASED DRILL HOLE
FH	HOLLOW FLIGHT AUGER
PA	POWER AUGER
PH	PROBE
PT	PERCOLATION TEST HOLE
RP	1 INCH SAMPLER (RETRACTABLE PLUG)
	TO BE DEFINED AT THE TIME OF EXPLORATION
SP	SEISMIC POINT
TP	TEST PIT
	ABBREVIATION "C" IN CATAGORIES: DA, DM, DN, AND FH WITH:
B	BRIDGE
C	CUT
D	DAM
F	FILL
K	CULVERT
W	WALL
X	TO BE USED IF ONE OF THE ABOVE CANNOT BE DEFINED AT THE TIME THE EXPLORATION IS MADE

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RENAISSANCE COMMERCE PARK - PUBLIC ROAD B

INDEX AND ABBREVIATIONS

Sheet No.
Date Feb. 2022
Scale As Noted
DWG. IN-1

RENAISSANCE COMMERCE PARK -
PUBLIC ROAD B
Sheet Number 6 OF 31

ALIGNMENT

STYLE	NAME	DESCRIPTION
	AC	CONTROL (CENTERLINE)
	AD_P	DETOUR
	AT_P	TRANSITION CONTROL

BRIDGE

STYLE	NAME	DESCRIPTION
	BR	RAIL
	BSHT	SHEET PILING

CONTROL

STYLE	NAME	DESCRIPTION
℄	CB	BASELINE
℄ –	CBPR	BASELINE, PROJECTION

DRAINAGE

STYLE	NAME	DESCRIPTION
ST	DCP	CULVERT PIPE
ST	DCP_P	CULVERT PIPE (DIR)
	DDG_P	DITCH, GRASS LINED
	DDP_P	DITCH, PAVED INVERT
	DDS_P	DITCH, STONE LINED
	DFL_P	FLOW LINE
	DSSD	SLOTTED DRAIN
UD	DUD_P	UNDERDRAIN

ENVIRONMENTAL

STYLE	NAME	DESCRIPTION
S	EBLHS	BALE, STRAW
	ECT	CURTAIN, TURBIDITY
	EDMC	DAM, COFFER
	EDMEC_P	DAM, EARTHEN CHECK
	EDMGSC_P	DAM, GRAVEL BAG/SAND BAG CHECK
	EDMPC_P	DAM, PREFABRICATED CHECK
	EDMSC_P	DAM, STONE CHECK
	EFNS	FENCE, SILT
x	EFNSV	FENCE, SILT & VEGETATION
x	EFNV	FENCE, VEGETATION
AA	EWAA_P	WETLAND, ADJACENT AREA
FW	EWF	WETLAND, FEDERAL
FW SW	EWFS	WETLAND, FEDERAL AND STATE
SW	EWM	WETLAND, MITIGATION AREA
SW	EWS	WETLAND, STATE

LANDSCAPE

STYLE	NAME	DESCRIPTION
	LABL	AREA, BRUSH LINE
	LAHR	AREA, HEDGE ROW
	LAPB	AREA, PLANTING BED
	LAWA	AREA, WOODED AREA OUTLINE
	LAWE	AREA, WATERS EDGE
	LCUT_P	CUT LIMIT
	LFILL_P	FILL LIMIT
	LFNC	FENCE
	LTRC	TREE ROW, CONIFEROUS
	LTRD	TREE ROW, DECIDUOUS
	LWH	WALL, H PILE
	LWR	WALL, RETAINING
	LWS	WALL, STONE

ROW MAPPING

STYLE	NAME	DESCRIPTION
	MDL	DEED LINE
PE	MEE	EASEMENT, EXISTING
PE	MEP_P	EASEMENT, PERMANENT
APE	MEPA_P	EASEMENT, PERMANENT, APPROX.
TE	MET_P	EASEMENT, TEMPORARY
ATE	META_P	EASEMENT. TEMPORARY, APPROX.
FEE	MF_P	FEE ACQUISITION, W/ ACCESS
AFEE	MFA_P	FEE ACQUISITION, APPROXIMATE
	MFS_P	FEE ACQUISITION, SHAPE
FEE W/OA	MFWOA_P	FEE ACQUISITION, W/O ACCESS
	MHA	HISTORICAL, ACQUISITION
HB	MHB	HIGHWAY BOUNDARY
AHB	MHBA	HIGHWAY BOUNDARY, APPROX.
	MHBW	HWY BOUNDARY, FACE OF WALL
HB W/OA	MHBWOA	HIGHWAY BOUNDARY, W/O ACCESS
	MJC	JURISDICTION, CITY
	MJCY	JURISDICTION, COUNTY
	MJHD	JURISDICTION, HISTORIC DISTRICT
	MJLL	JURIS., (GREAT, MILITARY) LOT LINE
	MJN	JURISDICTION, NATION
	MJPB	JURISDICTION, PUBLIC LANDS
	MJS	JURISDICTION, STATE
	MJT	JURISDICTION, TOWN
	MJV	JURISDICTION, VILLAGE
	MPL	PROPERTY LOT LINE
	MPLA	PROPERTY LOT LINE, APPROXIMATE
	MSL	SUB LOT LINE

ROADWAY

STYLE	NAME	DESCRIPTION
CZ	RCZ_P	CLEAR ZONE
	RG	GUIDE RAIL, MISCELLANEOUS
	RGB	GUIDE RAIL, BOX BEAM
	RGBM	GUIDE RAIL, BOX BEAM, MEDIAN
	RGC	GUIDE RAIL, CABLE
	RGCB	GUIDE RAIL, CONCRETE BARRIER
	RGP_P	GUIDE POST
	RGW	GUIDE RAIL, W BEAM
	RGWM	GUIDE RAIL, W BEAM, MEDIAN
	RPB	PARKING BUMPER
	RRC	RAIL ROAD, CATENARY
3R	RRER	RAIL ROAD, 3RD RAIL
	RRPLS_P	RAIL, PHOTO, LARGE SCALE
	RRPSS	RAIL, PHOTO, SMALL SCALE
	RRS	RUMBLE STRIP
	RRSLS_P	RAIL, SURVEY, LARGE SCALE
	RRSSS	RAIL, SURVEY, SMALL SCALE

SIGNS

STYLE	NAME	DESCRIPTION
	SBLB	BILLBOARDS
	SM	MULTIPLE POST
	SSO	STRUCTURE, OVERHEAD
	SSOC	STRUCTURE, OVHD. CANTILEVER

STRIPING

STYLE	NAME	DESCRIPTION
	STB*	BROKEN LINE
	STDB*	DOUBLE BROKEN LINE
	STDL*	DOTTED LINE LONG
	STDS*	DOTTED LINE SHORT
	STFB*	FULL BARRIER LINE
	STH*	HATCH LINE
	STPB*	PARTIAL BARRIER LINE
	STRCT	ROUNDABOUT, CAT TRACKS
	STRYL	ROUNDABOUT, YIELD LINE
	STSB	STOP BAR
	STSE*	SOLID, EDGE
	STXL	X WALK, LADDER LINE
	STXLB	X WALK, LADDER BAR LINE

* = W (WHITE) OR Y (YELLOW)

TRAFFIC CONTROL

STYLE	NAME	DESCRIPTION
	TCSW	SIGNAL, SPAN WIRE

TRAFFIC WORK ZONE

	TWZBT_P	BARRIER, TEMPORARY
	TWZBTWL_P	BARRIER, TEMPORARY, W/ WARNING LIGHTS
	TWZCD_P	CHANNELIZING DEVICE
	TWZPMRC_P	PAVEMENT MARKING REMOVAL OR COVERING

UTILITIES

STYLE	NAME	DESCRIPTION
C	UC	CONDUIT, UNDERGROUND
]C[	UCH	CONDUIT, HANGING
OC	UCO	CONDUIT, OVERHEAD
E	UE	ELECTRIC LINE, UNDERGROUND
]E[	UEH	ELECTRIC LINE, HANGING
OE	UEO	ELECTRIC LINE, OVERHEAD
OET	UETO	ELECTRIC TRANSMISSION, OVERHEAD
	UESS	ELECTRIC, SUBSTATIONS
FO	UFO	FIBER OPTIC, UNDERGROUND
]FO[	UFOH	FIBER OPTIC, HANGING
OFO	UFOO	FIBER OPTIC, OVERHEAD
G	UG	GAS, UNDERGROUND
]G[	UGH	GAS, HANGING
OG	UGO	GAS, OVERHEAD
IC	UIC	INFORM CABLE, UNDERGROUND
]IC[	UICH	INFORM CABLE, HANGING
O	UO	OIL LINE, UNDERGROUND
]O[	UOH	OIL LINE, HANGING
	UPBP	POLE, BRACE, PUSH BRACE
	UPGW	POLE, GUY WIRE
SA	USA	SANITARY SEWER, UNDERGROUND
]SA[	USAH	SANITARY SEWER, HANGING
SAF	USAF	SANITARY SEWER, FORCE MAIN, UGND
]SAF[	USAFH	SANITARY SEWER, FORCE MAIN, HANG
T	UT	TELEPHONE, UNDERGROUND
]T[	UTH	TELEPHONE, HANGING
OT	UTO	TELEPHONE, OVERHEAD
CTV	UTV	CABLE TV, UNDERGROUND
]CTV[	UTVH	CABLE TV, HANGING
OCTV	UTVO	CABLE TV, OVERHEAD
UU	UUU	UNKNOWN, UNDERGROUND
]UU[	UUH	UNKNOWN, HANGING
OUU	UUO	UNKNOWN, OVERHEAD
W	UW	WATER LINE, UNDERGROUND
]W[	UWH	WATER LINE, HANGING
OW	UWO	WATER LINE, OVERHEAD

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RENAISSANCE COMMERCE PARK - PUBLIC ROAD B

LEGEND - LINE SYMBOLOGY

Sheet No.
Date Feb. 2022
Scale As Noted
DWG. LEG-1

ALIGNMENT

CELL	NAME	DESCRIPTION
	ACC	CENTER OF CURVATURE
	ACOGO	COGO
	ACS	CURVE TO SPIRAL
	ADPI_P	DETOUR, POINT OF INTERSECT.
	ADPL_P	DETOUR, POINT ON LINE
	AEQN	EQUATION
A	AEQNAHD	EQUATION AHEAD
B	AEQNBK	EQUATION BACK
	AEVT	EVENT STATION
	APC	POINT OF CURVATURE
	APCC	POINT OF COMPOUND CURVATURE
	API	POINT OF INTERSECTION
	APOB	POINT OF BEGINNING
	APOC	POINT OF CURVATURE
	APOE	POINT OF END
	APOL	POINT ON LINE
	APOS	POINT ON SPIRAL
	APOT	POINT ON TANGENT
	APOVC	POINT ON VERTICAL CURVE
	APOVT	POINT ON VERTICAL TANGENT
	APORC	POINT ON REVERSE CURVE
	APT	POINT OF TANGENCY
	APVC	POINT OF VERTICAL CURVATURE
	APVCC	POINT OF VERT. CMPND CURVE
	APVI	POINT OF VERT. INTERSECTION
	APVRC	POINT OF VERT. REVERSE CURVE
	APVT	POINT OF VERTICAL TANGENCY
	ASC	SPIRAL TO CURVE
	ASPI	SPIRAL POINT OF INTERSECTION
	ASTS	SPIRAL TO SPIRAL
	AST	SPIRAL TO TANGENT
	ATS	TANGENT TO SPIRAL
	AVEVT	VERTICAL EVENT POINT
	AVHIGH	VERTICAL HIGH POINT
	AVLOW	VERTICAL LOW POINT

DRAINAGE

CELL	NAME	DESCRIPTION
	DINV	INVERT
	DS	STRUCTURE, RECTANGULAR
	DSI	STRUCTURE, INVERT
	DSM	STRUCTURE, MANHOLE
	DSMTXX_P	STRUCTURE, MANHOLE, TYPE "XX" "XX" = 48, 60, 72, 96
	DSR	STRUCTURE, ROUND
	DST"X"CB_P	STRUCTURE, RECT., WITH CURB TYPE "X" "X" = F, G, N, O, P, R
	DST"X"_P	STRUCTURE, RECT., TYPE "X" "X" = I, K, L, M, O, P, U

ENVIRONMENTAL

CELL	NAME	DESCRIPTION
CULV	EIOP_P	STR., INLET, OUTLET PROT.
GB	EIPGB_P	STR., INLET PROT., GRAVEL BAG
H/S	EIPHS_P	STR., INLET PROT., HAY/STRAW
PREFB	EIPP_P	STR., INLET PROT., PREFAB.
SF	EIPSF_P	STR., INLET PROT., SILT FENCE
	ERCB	RISER, CONCRETE BOX
	ETRS_P	TRAP, SEDIMENT
	EWFG	WETLAND FLAG

GEOTECHNICAL

CELL	NAME	DESCRIPTION
	GDH	DRILL HOLE

LANDSCAPE

CELL	NAME	DESCRIPTION
	LELS	ELEVATION, SPOT
P	LFP	FLAG POLE
	LMB	MAILBOX
	LPB	PAPER BOX
	LPST	POST, SINGLE
	LRB	ROCK, BOULDER
	LSHC	SHRUB, CONIFEROUS
	LSHD	SHRUB, DECIDUOUS
	LTC	TREE, CONIFEROUS
	LTD	TREE, DECIDUOUS
	LTS	TREE, STUMP
	LTW_P	TREE, WELL OR WALL
	LUKP	UNKNOWN POINT

SIGNS

CELL	NAME	DESCRIPTION
	S	SINGLE POST
	S_P	SINGLE POST, PROPOSED
	SB_P	BACK TO BACK, PROPOSED
	SDEL	DELINEATORS
	SPM	PARKING METER
RFM	SRM	REFERENCE MARKERS
	SRSC3	SHLD, CTY, 123 DIG.
	SRSC4	SHLD, CTY, 4 DIG.
	SRSCT2	SHLD, CTY TOUR, 1–2 DIG.
	SRSCT4	SHLD, CTY TOUR, 3–4 DIG.
	SRSI	SHLD, INTERSTATE
	SRSN2	SHLD, NATIONAL, 2 DIG.
	SRSN3	SHLD, NATIONAL, 3 DIG.
	SRSS2	SHLD, STATE, 2 DIG.
	SRSS3	SHLD, STATE, 3 DIG.
	SRSS4	SHLD, STATE, 4 DIG.

TRAFFIC CONTROL

CELL	NAME	DESCRIPTION
	TCBJ	BOX, JUNCTION
T	TCBP	BOX, PULL BOX
	TCBS	BOX, SPLICE
C	TCMC	MICROCOMPUTER CABINET
	TCPP	PED POLE
	TCSH	SIGNAL HEADS
	TCSP	SIGNAL POLE

TRAFFIC WORK ZONE

CELL	NAME	DESCRIPTION
	TWZAP_P	ARROW PANEL
	TWZAPC_P	ARROW PANEL, CAUTION MODE
	TWZAPT_P	ARROW PANEL, TRAILER OR SUPPORT
	TWZBCD_P	BARRICADE (TYPE III)
	TWZCMS_P	CHANGEABLE MESSAGE SIGN (PVMS)
	TWZFLG_P	FLAGGER
	TWZFT_P	FLAG TREE
	TWZIA_P	IMPACT ATTENUATOR / CRASH CUSHION (TEMPORARY)
	TWZLUM_P	LUMINAIRE (TEMPORARY)
	TWZSDT_P	SYMBOL, DIRECTION OF TRAFFIC
	TWZSDTD_P	SYMBOL, DIRECTION OF TEMPORARY TRAFFIC DETOUR
	TWZSGN_P	SIGN (TEMPORARY)
	TWZSIG_P	SIGNAL, TRAFFIC OR PEDESTRIAN (TEMPORARY)
	TWZWL_P	WARNING LIGHT
	TWZWV_P	WORK VEHICLE
	TWZWVA_P	WORK VEHICLE WITH TRUCK MOUNTED ATTENUATOR

UTILITIES

CELL	NAME	DESCRIPTION
E	UEB	ELECTRIC, BOX
E	UEM	ELECTRIC, METER
E	UEMH	ELECTRIC, MANHOLE
	UEPT	ELECTRIC, POLE, TRANS.
G	UGM	GAS, METER
G	UGMH	GAS, MANHOLE
	UGLM	GAS, LINE MARKER
FP	UGP	GAS/FUEL PUMP
	UGV	GAS, VALVE
	UGVT	GAS, VENT
	ULP	LIGHTING, POLE
	ULPM	LIGHTING, POLE, MEDIAN
	ULPP	LIGHTING, POLE, PED.
	UMFC	MISC. FILLER CAP
	UOLM	OIL, LINE MARKER
	UP	POLE, WITH UTILITY
	UPD	POLE, DEAD (NO UTILITY)
	UPL	POLE, WITH LIGHT
S	USMH	SANITARY SEWER MANHOLE
P	UTB	TELEPHONE, BOOTH
	UTLM	TELEPHONE, LINE MARKER
T	UTMH	TELEPHONE, MANHOLE
	UTVLM	CABLE TV, LINE MARKER
	UTVPB	CABLE TV, PULL BOX
	UUB	UNKNOWN, BOX
	UUJB	UNKNOWN, JUNCTION BOX
	UUMH	UNKNOWN, MANHOLE
	UUPB	UNKNOWN, PULL BOX
	UUVL	UNKNOWN, VALVE
	UUVT	UNKNOWN, VENT
	UUW	UNKNOWN, WELL
	UWFH	WATER, FIRE HYDRANT
W	UWM	WATER, METER
W	UWMH	WATER, MANHOLE
	UWV	WATER, VALVE
W	UWW	WATER, WELL

BRIDGE

	BSC	BRIDGE, SCUPPER

CONTROL

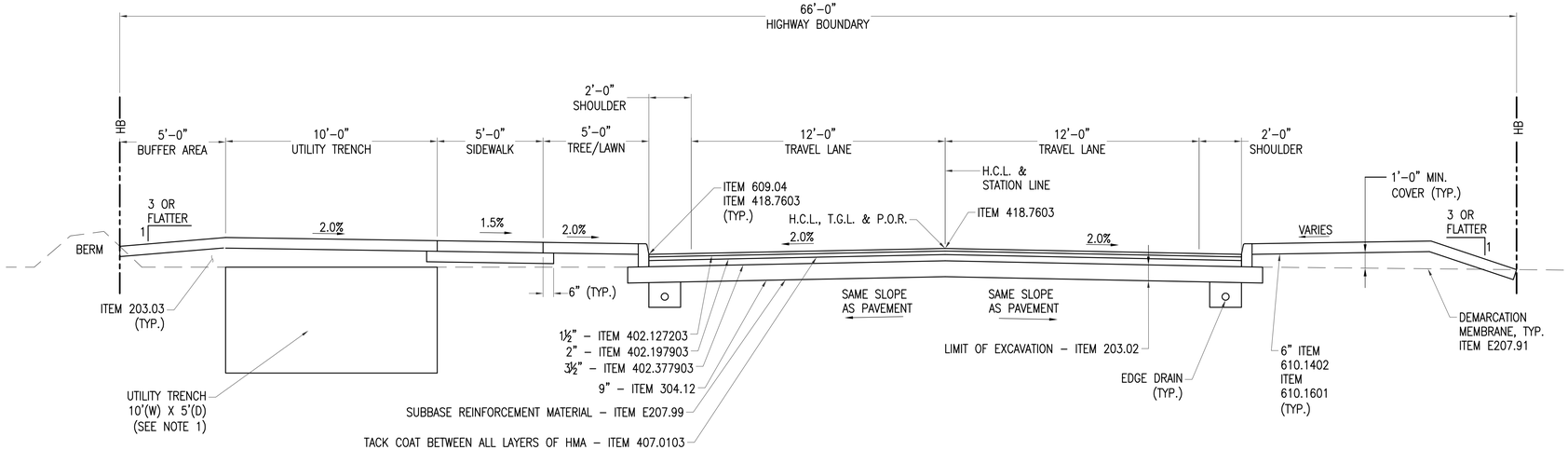
	CBP	BASELINE, POINT
	CBPOL	BASELINE, POINT ON LINE
	CBSP	BASELINE, SPUR POINT
	CBTP	BASELINE, TIE POINT
	CPBM	BENCHMARK
	CPH	POINT, HORIZ. PHOTOGRAMMETRY
	CPSM	POINT, SURVEY MARKER, PERM.
	CPSV	POINT, VERT., PHOTOGRAMMETRY

NOTES:

1. THE LEGEND ILLUSTRATES MAPPING FEATURES (EXISTING AND PROPOSED).
2. FEATURES ARE SHOWN AS EITHER LINEAR (ROADWAY GUIDERAIL, ROADWAY SIDEWALK, UTILITY LINES, ETC.) OR POINT (SIGN, UTILITY POLE, ETC.).
3. FEATURES SHOWN ON THE LEGEND AS EXISTING FEATURES ALSO HAVE CORRESPONDING PROPOSED FEATURES.
4. PROPOSED FEATURE SYMBOLOGY IS IDENTICAL TO EXISTING FEATURE SYMBOLOGY EXCLUDING LINE WEIGHT. LINE WEIGHT FOR PROPOSED FEATURES IS THICKER (0.015 in ON B SIZE DRAWINGS).
5. MAPPING FEATURES NOT INCLUDED ON THE LEGEND SHEET DO NOT HAVE A UNIQUE SYMBOLOGY (SUCH AS THE PAVEMENT EDGE, PAVEMENT EDGE OF TRAVEL WAY) AND SHOULD BE LABELED ON THE PLANS.
6. FEATURES SHOWN AT THE HEAVIER WEIGHT ARE PROPOSED ONLY AND DO NOT HAVE CORRESPONDING EXISTING FEATURES.

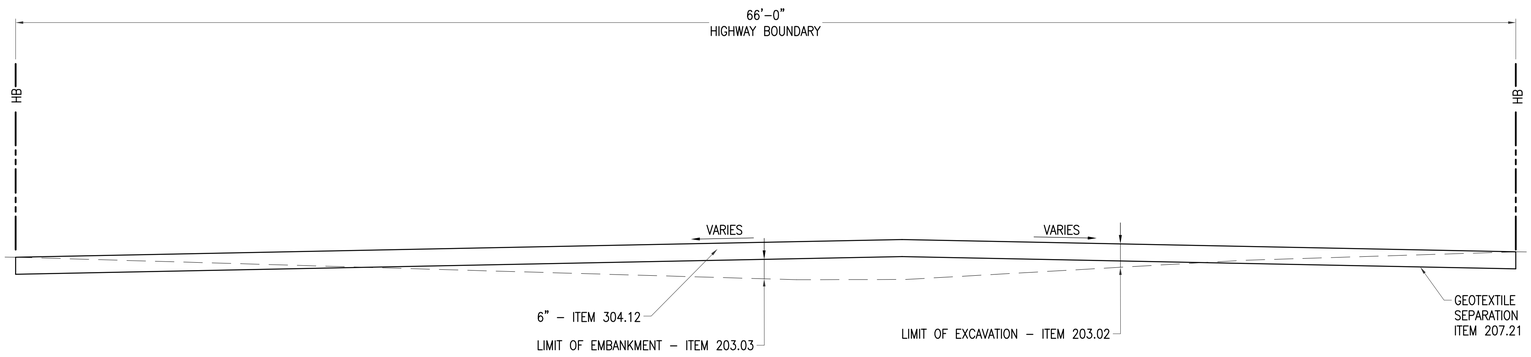
FINAL GRADING SHALL BLEND IN WITH TSR EARTHEN BERM WHERE NECESSARY. CONTACT MR. RAY LAPORT (716) 860-3971 OF BENCHMARK ENVIRONMENTAL PRIOR TO ROUGH GRADING

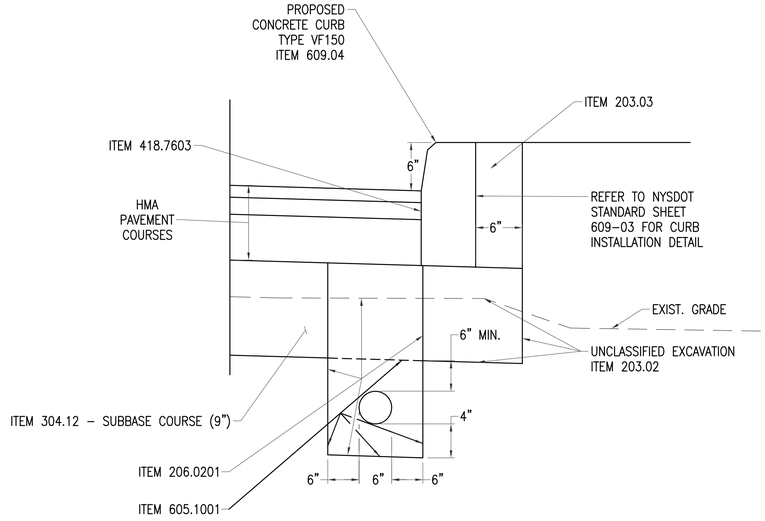
RENAISSANCE COMMERCE PARK - PUBLIC ROAD B
Sheet Number 8 OF 31



TYPICAL SECTION – NORMAL CROWN

NOT TO SCALE





EDGE DRAIN DETAIL

NOT TO SCALE

STONE CIRCLE TURN-AROUND

NOT TO SCALE

ITEM	DESCRIPTION	UNIT
203.02	UNCLASSIFIED EXCAVATION AND DISPOSAL	CY
203.03	EMBANKMENT IN PLACE	CY
E207.91	DEMARCATION MEMBRANE	SY
E207.99	SUBBASE REINFORCEMENT MATERIAL, LAYER 2	SY
304.12	SUBBASE COURSE, TYPE 2	CY
402.127203	12.5 F2 TOP COURSE HMA, SHOULDER COURSE, 70 SERIES COMPACTION	TON
402.197903	19 F9 BINDER COURSE HMA, 70 SERIES COMPACTION	TON
402.377903	37.5 F9 BASE COURSE HMA, 70 SERIES COMPACTION	TON
407.0103	STRAIGHT TACK COAT	GAL
418.7603	ASPHALT PAVEMENT JOINT ADHESIVE	LF
609.04	CAST-IN-PLACE CONCRETE CURB (AS DETAILED)	LF
610.1402	TOPSOIL – ROADSIDE	CY
610.1601	TURF ESTABLISHMENT – ROADSIDE	SY

NOTES

1. REFER TO DWG. NO. MSD-1 FOR UTILITY TRENCH DETAIL.
2. PAVEMENT SUBGRADE SHALL BE PROOFED ROLLED IN ACCORDANCE WITH THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS SECTION 203. ONLY A CHARRIOT STYLE STYLE PROOF ROLLER MEETING THE REQUIREMENTS OF THIS SECTION WILL BE ACCEPTED. ANY AREA FOUND TO BE UNACCEPTABLE SHALL BE REMOVED, REPLACED AND RETESTED. COST OF REMOVAL OF UNSUITABLE MATERIAL AND REPLACEMENT WITH ACCEPTABLE MATERIAL AND RETESTING WITH PROOF ROLLER SHALL BE BORNE BY THE CONTRACTOR REGARDLESS IF APPROVED MATERIAL WAS INITIALLY USED.
3. THE ABOVE SHALL APPLY UNLESS THE DEPTH OF REMOVAL IS GREATER THAN TWO-FEET (2') BELOW ORIGINAL GROUND OR ROAD CUT EXCAVATION LIMITS WHICH EVER IS AT THE LOWEST ELEVATION AND WAS NOT ASCERTAINABLE AT TIME OF ORIGINAL ROADWAY CUT. THEN PAVEMENT SHALL BE MADE USING CONTRACT BID ITEMS 203.02 AND EITHER 203.03 OR 204.01 CONTROLLED LOW STRENGTH MATERIAL. THE CONTRACTOR SHALL PROVIDE, AT THEIR COST, AN APPROVED THIRD PARTY CERTIFIED TESTING FIRM, THAT IS ACCEPTABLE TO THE EIC FOR ALL MATERIAL TESTING AND COMPACTION TESTING.

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ECIDA/ILDE 95 Perry Street, Suite 403 Buffalo, New York 14203	Sheet No.
	Date Feb. 2022
RENAISSANCE COMMERCE PARK - PUBLIC ROAD B	Scale As Noted
TYPICAL SECTIONS	DWG. TS-1

GENERAL NOTES:

DESIGN SPECIFICATIONS: NYSDOT HIGHWAY DESIGN MANUAL, INCLUDING ALL PROVISIONS IN EFFECT AS OF JANUARY 2022.

CONSTRUCTION AND MATERIAL SPECIFICATIONS: STANDARD SPECIFICATIONS, CONSTRUCTION AND MATERIALS, NYSDOT, OFFICE OF ENGINEERING, DATED JANUARY 1, 2022, WITH CURRENT ADDITIONS AND REVISIONS.

WHERE STATE SPECIFICATIONS MENTION REGIONAL DIRECTOR, REGIONAL ENGINEER OR REGIONAL MATERIALS ENGINEER, THIS SHALL REFER TO ECIDA. WHERE THE SPECIFICATIONS MENTION NEW YORK STATE OR STATE, THIS SHALL REFER TO ECIDA.

ADDITIONAL NOTES WILL BE FOUND ON SUBSEQUENT SHEETS OF THE CONTRACT PLANS. THESE NOTES PERTAIN TO THE SPECIFIC DRAWINGS WHERE THEY ARE SHOWN AND ALSO SUPPLEMENT THE GENERAL NOTES LISTED HERE.

THE CONTRACT PLANS WERE PREPARED BASED ON FIELD SURVEYING AND OTHER AVAILABLE INFORMATION. ACTUAL FIELD CONDITIONS MAY DIFFER FROM THE DETAILS AND WORK QUANTITIES SHOWN IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL PERFORM THE WORK IN ACCORDANCE WITH THE ACTUAL FIELD CONDITIONS AND A.O.B.E.

THE CONTRACTOR SHALL MAKE NO CLAIM AGAINST CITY OF LACKAWANNA FOR WORK PERTAINING TO MODIFICATIONS AS MAY BE REQUIRED DUE TO DIFFERENCE BETWEEN ACTUAL FIELD CONDITIONS AND THOSE SHOWN IN THE CONTRACT PLANS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY FIELD CONDITIONS PRIOR TO BID.

THE CONTRACTOR SHALL CONDUCT THE WORK IN A MANNER THAT WILL ENSURE AS FAR AS PRACTICABLE, THE LEAST OBSTRUCTION TO TRAFFIC AND ADJACENT PROPERTY, AND SHALL PROVIDE FOR THE CONVENIENCE AND SAFETY OF THE GENERAL PUBLIC ALONG AND ADJACENT TO ROADWAYS IN THE CONSTRUCTION AREA, IN AN ADEQUATE AND SATISFACTORY MANNER.

THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH ADEQUATE ACCESS TO ALL WORK AREAS. THE CONTRACTOR SHALL PERFORM ALL WORK WITH CARE SO THAT ANY MATERIALS WHICH ARE TO REMAIN IN PLACE OR ARE THE PROPERTY OF THE CITY OF LACKAWANNA ANY OTHER AGENCY WILL NOT BE DAMAGED. ANY DAMAGED MATERIALS SHALL BE REPAIRED OR REPLACED IN A MANNER SATISFACTORY TO THE ENGINEER AT NO EXPENSE TO ECIDA.

CONTRACTOR OR HIS EMPLOYEES SHALL BE RESTORED TO THE SATISFACTION OF THE ENGINEER AND THE OWNER AT THE CONTRACTOR'S EXPENSE.

ALL SALVAGED MATERIALS SHALL BE STORED BY THE CONTRACTOR AT A SITE APPROVED BY THE ENGINEER. IF THE SALVAGED MATERIALS ARE NOT REMOVED FROM THE JOB SITE WITHIN THE SPECIFIED TIME THE MATERIALS WILL BECOME WILL BECOME PROPERTY OF THE CONTRACTOR, WHO WILL BE RESPONSIBLE FOR THE DISPOSAL OF THE MATERIALS. THE COST OF STORAGE, REMOVAL, OR DISMANTLING OF ALL DESIGNATED SALVAGEABLE ITEMS SHALL BE INCLUDED IN THE CONTRACT ITEMS.

ADDITIONAL WORK, NOT SHOWN OR NOTED ON THE PLANS, THAT IS COINCIDENTAL OF AND/OR PERTAINING TO THIS PROJECT, MAY BE REQUIRED AS THE CONTRACT PROGRESSES. THIS WORK SHALL BE PERFORMED BY THE CONTRACTOR A.O.B.E. PAYMENT SHALL BE MADE AT AN AGREED PRICE AS STIPULATED UNDER THE PROVISIONS OF THE CONTRACT.

THE CONTRACTOR SHALL SUBMIT A SITE SPECIFIC HEALTH AND SAFETY PLAN TO THE CITY OF LACKAWANNA AND/OR HIS REPRESENTATIVE AT THE PRE-CONSTRUCTION MEETING. THE CONTRACTOR SHALL STRICTLY ADHERE TO THE SAFETY REQUIREMENTS OF ECIDA AND ALL OTHER STATE AND LOCAL AGENCIES ASSOCIATED WITH THIS CONTRACT.

THE CONTRACTOR SHALL CONSTRUCT THE CONTRACT IN ACCORDANCE WITH THE CONTRACT PLANS, SPECIFICATIONS AND ALL OTHER RELATED DOCUMENTATION. HE SHALL PROGRESS THE WORK IN A PROFESSIONAL, WORKMANLIKE AND TIMELY MANNER SO AS TO PRODUCE A FINISHED PRODUCT THAT IS OF HIGH QUALITY WORKMANSHIP, ON TIME, AND SATISFACTORY TO THE ENGINEER.

THE CONTRACTOR SHALL PERFORM TESTS AND PROVIDE TEST RESULTS FOR COMPACTION OF ALL BACKFILL MATERIAL AND PLACEMENT OF CONCRETE IN ACCORDANCE WITH THE NYSDOT STANDARD SPECIFICATIONS AND THE NYSDOT MATERIALS BUREAU.

THE CONTRACTOR SHALL PROOF ROLL, WITH A CHARIOT STYLE PROOF ROLLER, THE ENTIRE ROADWAY SUBGRADE PRIOR TO PLACEMENT OF THE SUBBASE REINFORCEMENT MATERIAL, LAYER 2. PROOF ROLLING LOADS SHALL BE IN ACCORDANCE WITH NYSDOT STANDARD SPECIFICATIONS, SECTION 203.

GENERAL NOTES (CONT.):

THE CONTRACTOR SHALL SUBMIT INVOICES, RECEIPTS, TEST REPORTS, PERMITS, MATERIAL CERTIFICATIONS ETC. TO THE ENGINEER-IN-CHARGE FOR ALL MATERIALS DELIVERED TO THE PROJECT SITE AND INCORPORATED INTO THE WORK.

WHENEVER ITEMS IN THE CONTRACT REQUIRE MATERIALS TO BE REMOVED AND DISPOSED OF, THE COST OF SUPPLYING A DISPOSAL AREA AND TRANSPORTATION TO THAT AREA SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THOSE ITEMS.

THE CONTRACTOR SHALL PROTECT HIS WORKERS AN THE PUBLIC AT ALL TIMES IN CONFORMANCE WITH APPLICABLE OSHA REGULATIONS.

THE COST OF WATER FOR COMPACTION OF SELECT FILL ITEMS SHALL BE INCLUDED UNDER THOSE ITEMS THAT REQUIRE THE APPLICATION OF WATER. ALL PLACEMENTS OF SELECT STRUCTURE FILL, ITEM 203.21, SHALL BE COMPACTED TO 95 PERCENT OF STANDARD PROCTOR MAXIMUM DENSITY.

CARE SHALL BE TAKEN TO RETAIN NATURAL GROWTH AND PREVENT DAMAGE TO TREES THAT ARE NOT SCHEDULED FOR REMOVAL, BOTH INSIDE AND OUTSIDE THE LIMITS OF CONSTRUCTION. ANY DAMAGE CAUSED TO THE NATURAL GROWTH SHALL BE RESTORED AT THE EXPENSE OF THE CONTRACTOR A.O.B.E. CONTRACTOR SHALL FURNISH, INSTALL AND REMOVE TEMPORARY PLASTIC BARRIER FENCE, ITEM 607.4101001 AS SHOWN IN THE MISCELLANEOUS TABLES.

THE WORK AREA SHALL BE CLEARED AND GRUBBED AS NECESSARY WITHIN THE LIMITS OF GRADING SHOWN ON THE PLAN. WORK IS INCLUDED UNDER ITEM 201.06

GRASSED AREAS DISTURBED BY THE CONTRACTOR, AS PART OF WORK TO BE PERFORMED UNDER THIS CONTRACT SHALL BE RESTORED AS SPECIFIED, TO THE SATISFACTION OF THE ENGINEER. ALL DISTURBED GRASS AREAS SHALL BE GRADED IN A MANNER APPROVED BY THE ENGINEER, TOPSOILED AND SEEDED AS SHOWN ON THE PLANS. DISTURBED AREAS BEYOND THE GRADING LIMITS SHOWN ON THE DRAWINGS SHALL

ANY SIGNS, MILE MARKERS, FENCING, DECORATIVE LANDSCAPING, ETC. REMOVED BY THE CONTRACTOR IN ORDER TO COMPLETE WORK ASSOCIATED WITH THE PROJECT, SHALL BE REPLACED BY THE CONTRACTOR. THE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT BID PRICE FOR VARIOUS ITEMS.

R.O.W. LIMITS SHOWN ON THE PLANS WERE OBTAINED FROM AVAILABLE MAPS INFORMATION AND RECORD DRAWINGS, AND ARE SHOWN FOR REFERENCE PURPOSES.AS SUCH, THE ACCURACY OF THEIR LOCATIONS ARE TO THE MOST CURRENT AND AVAILABLE INFORMATION.

THE CONTRACTOR SHALL LOCATE ALL PERTINENT PROPERTY, EASEMENT AND/OR R.O.W. LINES PRIOR TO STARTING WORK. THE CONTRACTOR SHALL NOT TRESPASS OR START WORK ON OTHER PROPERTIES, EASEMENTS OR R.O.W. WITHOUT PROPERLY NOTIFYING AND MEETING THE NECESSARY REQUIREMENTS OF THE PROPERTY OWNER OR AUTHORIZING AGENCY.

THE CONTRACTOR SHALL LOCATE, MARK, SAFEGUARD, AND PRESERVE ALL SURVEY CONTROL MONUMENTS, R.O.W. MONUMENTS, AND PROPERTY PINS WITHIN THE PROJECT AREA.

THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND THE CITY OF LACKAWANNA OF ANY HAZARDOUS SUBSTANCE ENCOUNTERED DURING THE CONSTRUCTION OF THE WORK. WHEN ENCOUNTERING OR WORKING WITH ANY SUCH HAZARDOUS SUBSTANCE, THE CONTRACTOR SHALL, AT HIS EXPENSE CONFORM TO ALL LAWS, RULES, REGULATIONS AND DIRECTIONS AS PROMULGATED BY THE US DEPARTMENT OF LABOR, OSHA, THE N.Y.S. DEPARTMENT OF HEALTH AND ALL LOCAL AGENCIES.

ALL CONSTRUCTION IN LOCAL, COUNTY OR STATE R.O.W. SHALL CONFORM TO THE REQUIREMENTS, RULES AND SPECIFICATIONS OF THE CORRESPONDING AGENCY. ALL WORK PERMITS AND FEES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

FOR ADDITIONAL GENERAL NOTES, REFER TO THE SPECIAL INSTRUCTIONS SECTION OF THE PROPOSAL BOOK.

UTILITY NOTES:

THE CONTRACTOR SHALL EXAMINE AND VERIFY IN THE FIELD ALL EXISTING CONDITIONS AND DIMENSIONS WITH THOSE SHOWN ON THE PLANS. IF FIELD CONDITIONS AND DIMENSIONS (INCLUDING STORM DRAINAGE STRUCTURE RIM AND INVERT ELEVATIONS AND PIPE SIZES) DIFFER FROM THOSE SHOWN ON THE PLANS, THE CONTRACTOR SHALL BRING SUCH INFORMATION TO THE ATTENTION OF THE ENGINEER AND WAIT FOR DIRECTION BY THE ENGINEER BEFORE PRECEDING WITH THE WORK.

THE LOCATIONS OF UNDERGROUND UTILITIES ARE APPROXIMATE; OTHER UNDERGROUND FACILITIES NOT SHOWN MAY EXIST. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO WORKING IN THE AREA AND TO AVOID INTERFERENCE. IN THE EVENT THE CONTRACTOR DAMAGES AN EXISTING UTILITY CAUSING AN INTERRUPTION IN SERVICE, HE/SHE SHALL START WORK IMMEDIATELY TO RESTORE SERVICE AND MAY NOT CEASE UNTIL SUCH SERVICE IS RESTORED. ALL CORRECTIVE UTILITY WORK SHALL BE AT THE EXPENSE OF THE CONTRACTOR AND ACCEPTABLE TO THE ENGINEER AND UTILITY OWNER. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONDUCT THE CONTRACT OPERATIONS AND TAKE THE NECESSARY PRECAUTIONS TO PREVENT INTERFERENCE WITH OR DAMAGE TO UTILITIES DURING THE COURSE OF CONSTRUCTION.

RECORD INFORMATION, PROVIDED BY UTILITY OWNERS, WAS PLOTTED ON THE CONTRACT PLANS. DEPTHS WERE NOT FIELD VERIFIED. PHYSICAL FEATURES LIKE MANHOLES, VALVE BOXES, AND HYDRANTS HAVE BEEN FIELD LOCATED. THE CONTRACTOR SHALL CONFIRM THE DEPTH AND LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. CONTACT UNDERGROUND FACILITIES PROTECTION ORGANIZATION (UFPO), 1-800-962-7962.

MAINTENANCE AND PROTECTION OF TRAFFIC NOTES:

THE CONTRACTOR SHALL MAINTAIN TRAFFIC THROUGHOUT THE LENGTH OF THE CONTRACT IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 619 OF THE STANDARD SPECIFICATIONS THE NYS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES; IN ACCORDANCE WITH ITEM 619.01 – BASIC MPT, THE CONTRACTOR SHALL MAINTAIN DRAINAGE FACILITIES AND OTHER HIGHWAY ELEMENTS, OLD OR NEW, INCLUDING DETOURS. THE CONTRACTOR SHALL KEEP ALL DRAINAGE FACILITIES FULLY OPERATIVE AT ALL TIMES. DITCHES SHALL BE PRO\DDE AT ALL TIMES EVEN DURING GRADING OPERATIONS TO ADEQUATELY DRAIN THE TRAVELED WAY.

FOR ADDITIONAL MPT NOTES AND DETAILS REFER TO DRAWINGS TC-01 .

PAVEMENT MARKING NOTES:

THE CONTRACTOR SHALL PROVIDE PAVEMENT MARKINGS AT ALL TIMES ON THE PROJECT. ALL MARKINGS ARE FOR TRAFFIC CONTROL AND SHALL CONFORM TO THE REQUIREMENTS OF THE NYS MUTCD, PAVEMENT MARKINGS ON DONA STREET THAT ARE IN CONFLICT WITH THE PROPOSED TRAFFIC PLAN SHALL BE BLACKED OUT WITH PREFORM TAPE. (ITEM 6190803). ALL TEMPORARY PAVEMENT MARKINGS SHALL BE WITH PREFORM PAVEMENT MARKING TAPE. (ITEM 619.0903)

ALL PAVEMENT STRIPING SHOWN ON THE CONTRACT PLANS IS APPROXIMATE AND SHALL BE VERIFIED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL COORDINATE FINAL LAYOUT OF PAVEMENT STRIPING WITH THE CITY OF LACKAWANNA TRAFFIC SAFETY ENGINEER: GINA WILKOLASKI, P.E. PHONE: (716) 858-8067).

EMERGENCY ACCESS NOTES:

AT ALL TIMES DURING CONSTRUCTION, THE CONTRACTOR MUST PROVIDE SAFE AND AND CONVENIENT EMERGENCY ACCESS. LOCAL FIRE AND POLICE AUTHORITIES AND AMBULANCE SERVICES SHALL BE NOTIFIED BY THE CONTRACTOR IN ADVANCE OF THE BEGINNING OF THE WORK IN ORDER TO COORDINATE AND MAINTAIN SUFFICIENT EMERGENCY SERVICES.

RESPONSIBILITY FOR EMERGENCY REPAIRS: THE CONTRACTOR SHALL IN WRITING, SUBMIT TO THE APPROPRIATE LAW ENFORCEMENT AGENCIES, THE NAME, ADDRESS AND TELEPHONE NUMBER OF THE PERSON OR PERSONS AUTHORIZED TO SECURE LABOR, MATERIALS AND EQUIPMENT FOR EMERGENCY REPAIRS OUTSIDE OF NORMAL WORKING HOURS. DUPLICATE COPIES OF THE ABOVE SHALL BE FILED WITH THE ENGINEER IN CHARGE.

UTILITY INFORMATION IS PROVIDED TO A QUALITY LEVEL C. THE INFORMATION SHOWN ON THE PLANS HAS BEEN OBTAINED BY SURVEYING AND PLOTTING VISIBLE ABOVE GROUND UTILITY FEATURES AND BY USING PROFESSIONAL JUDGEMENT IN CORRELATING THIS INFORMATION TO QUALITY LEVEL D INFORMATION.

THE SITE HAS SEVERAL UNDERGROUND UTILITIES THAT HAVE BEEN ABANDONED, THE CONTRACTOR SHALL COORDINATE WITH THE PROPERTY OWNER REGARDING THE STATUS AND LOCATION OF UNDERGROUND UTILITIES OUTSIDE OF THE HIGHWAY BOUNDARY

RIGHT OF WAY NOTES:

ALL WORK TO BE PERFORMED UNDER THIS CONTRACT WILL BE WITHIN THE PUBLIC RIGHT-OF-WAY (ROW) IN ACCORDANCE WITH SECTION 105-15 OF THE STANDARD SPECIFICATIONS. THE CONTRACTOR IS TO ASSURE HIMSELF THAT ALL WORK IS BEING PERFORMED WITHIN THE ROW, INCLUDING BUT NOT LIMITED TO VEHICLE STORAGE OF EQUIPMENT, MATERIALS, DEBRIS AND WASTE; LANDSCAPING; VEGETATION REMOVAL AND MANAGEMENT; GRADING, SEEDING AND INSTALLATION OF TURF AND THE INSTALLATION OF ANY FENCES OR PROTECTIVE BARRIER. IF CONTRACTOR IS UNABLE TO IDENTIFY THE LIMITS OF THE RIGHTS-OF-WAY WHEN THE CONTRACT CALLS FOR WORK IN THOSE VICINITIES, THE CONTRACTOR MUST CONTACT THE PROJECT ENGINEER FOR DEFINITIVE BOUNDARY DETERMINATION BEFORE ANY WORK MAY BE INITIATED AT THOSE LOCATIONS (STANDARD SPECIFICATIONS SECTIONS 105-10 AND 625.

IN ACCORDANCE WITH SECTION 105-15 OF THE STANDARD SPECIFICATIONS, RELEASES NY NON-ESSENTIAL CONTRACT WORK OUTSIDE OF THE EXISTING RIGHTS-OF-WAY, INCLUDING PLANTINGS, LANDSCAPING OR DRIVEWAY ENHANCEMENT, WILL BE PROVIDED BY THE PROJECT ENGINEER AND IN NO INSTANCE ARE TO BE SECURED BY THE CONTRACTOR. THE CONTRACTOR SHALL NOT INVADE UPON PRIVATE PROPERTIES, LANDS OR BUILDINGS OUTSIDE OF THE RIGHTS-OF-WAY FOR ANY REASON WITHOUT FIRST SECURING WRITTEN PERMISSION FROM THE PROPERTY OWNER (STANDARD SPECIFICATIONS SECTION 105-15).

THE CONTRACTOR WILL BE HELD LIABLE FOR ANY DAMAGES DONE. ANY SUCH INJURIES OR DAMAGES SHALL BE SATISFACTORILY REPAIRED OR ITEMS REPLACED AT THE CONTRACTOR'S EXPENSE (STANDARD SPECIFICATIONS SECTION 107-08).

UTILITY CONTACT INFORMATION

OWNER	CONTACT & ADDRESS	EMAIL	PHONE	REMARKS
Erie County Sewer District (ECSD)	Lorenzo Quebral, Engineer Assistant, Erie County, Div. of Sewage Management, 95 Franklin St, Buffalo, NY	Lorenzo Quebral@erie.gov	Phone: (716) 858-6974 Fax: (716) 858-6257	ECDD Sewerlines and manholes are buried within the Tecumseh Property at various locations throughtout the former Bethlehem Steel property.
Erie County Water Authority (ECWA)	Erie County Water Authority, 3030 Union Road, Cheektowaga NY	rsbill@ecwa.org	Phone: (716) 658-8276 Fax: (716) 684-3937	ECWA waterline and valves are buried along Dona Street Extension.
National Fuel	Andrew Gilbert, 6363 Main Street, Williamsville, NY 14221	Andrew Gilbert gilbertа@natfuel.com	(716) 870-7110	National Fuel gaslines and valves are buried in NYS Rte. 5, Hamburg Turnpike and within the Buffalo & Erie County Industrial Land Development Corp. property at several loacation.
National Grid				National Grid O/H and U.G electric lines, poles and guy wires are located along NYS Rte, 5 and throughout the Buffalo & Erie County Industrial Land Development Corp. Property. There are buried street light wire along Dona Street and O/H power lines along the west R.O.W. line of the Road B project.

GENERAL NOTES:

THE CONTRACTOR SHALL MAINTAIN TRAFFIC THROUGHOUT THE LENGTH OF THE CONTRACT IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 619 OF THE CURRENT STANDARD SPECIFICATIONS, THE NATIONAL MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.) IN ADDITION TO THE NEW YORK STATE(N.Y.S.) SUPPLEMENT INCLUDING LATEST REVISIONS, THE MAINTENANCE AND PROTECTION OF TRAFFIC DETAILS IN THE PLANS AND PROPOSAL OF THIS CONTRACT, AND AS DIRECTED BY THE ENGINEER.

FOR TYPICAL APPLICATIONS OF TRAFFIC CONTROL DEVICE IN CONSTRUCTION AREAS NOT SPECIFIED IN THE PLANS, THE PROVISIONS OF PART 6 OF THE M.U.T.C.D. WITH N.Y.S. SUPPLEMENT SHALL APPLY.

THE WORK ZONE TRAFFIC CONTROL (WZTC) PLANS IN NYSDOT STANDARD SHEETS ARE STANDARD FOR MOST COMMON SITUATIONS, ADDITIONAL PROTECTION SHALL BE PROVIDED WHERE SPECIAL CIRCUMSTANCES OCCUR AS DETERMINED BY THE ENGINEER AND PAID FOR UNDER ITEM 619.01, BASIC WORK ZONE TRAFFIC CONTROL.

THE CONTRACTOR SHALL REFERENCE THE FOLLOWING NYSDOT STANDARD SHEETS FOR WORK ZONE TRAFFIC CONTROL ON THIS PROJECT: 619.10 (WZTC GENERAL NOTES), 619.11 (WZTC LEGENDS AND NOTES), 619.12 (SIGN TABLE), 619.22(SHOULDER CLOSURE EXPRESSWAY/FREEWAY), 619-30 (SINGLE LANE CLOSURE MULTI-LANE HIGHWAY), 619.41 (DOUBLE INTERIOR LAND CLOSURE MULTI-LANE HIGHWAY), 619.61 (FLAGGING OPERATION 2-LANE 2-WAY ROADWAY INTERSECTION).

THE CONSTRUCTION APPROACH SIGNAGE AS SHOWN IN THE CONTRACT PLANS IS IN ACCORDANCE WITH THE M.U.T.C.D., IF FIELD CONDITIONS REQUIRE THE CONSTRUCTION APPROACH SIGNAGE TO BE MODIFIED, THE CONTRACTOR SHALL SUBMIT MODIFICATIONS IN ACCORDANCE WITH M.U.T.C.D. SECTION 6F.16(WARNING SIGN FUNCTION, DESIGN AND APPLICATION) AND 6F.17 (POSITION OF ADVANCE WARNING SIGNS) TO THE ENGINEER FOR APPROVAL.

THE CONTRACTOR MUST SUBMIT TO THE ENGINEER, IN WRITING, PROPOSED REVISIONS TO THE TRAFFIC CONTROL PLAN FOR REVIEW AND APPROVAL BY THE ENGINEER, FIVE (5) WORKING DAYS PRIOR TO THE PLANNED IMPLEMENTATION OF SUCH PROPOSED REVISIONS.

PRIOR TO THE START OF ANY WORK OPERATIONS, ALL RELATED WORK FOR PROPOSED WORK ZONE TRAFFIC CONTROL, AS DIRECTED BY THE ENGINEER SHALL BE COMPLETE. THIS INCLUDES BUT IS NOT LIMITED TO ALL SIGNS, SIGNALS, PAVEMENT MARKINGS, BARRIERS, DELINEATION (CONES, DRUMS, ETC.), FLAGGERS, PAVEMENT MODIFICATIONS, AND ANY OTHER RELATED WORK.

THE TRAFFIC CONTROL PLANS SHOWN ARE TO BE CONSIDERED MINIMUM REQUIREMENTS, ADDITIONAL SIGNS AND/OR TRAFFIC CONTROL DEVICES MAY BE REQUIRED AS DETERMINED BY THE ENGINEER, COST TO BE INCLUDED IN THE PRICE BID FOR THE APPROPRIATE ITEMS.

IF AT ANY TIME THE ENGINEER DETERMINES THAT TRAFFIC IS NOT BEING PROPERLY MAINTAINED WITHIN A WORK ZONE, THE CONTRACTOR SHALL IMMEDIATELY CORRECT THE INDICATED DEFICIENCY, AS DIRECTED BY THE ENGINEER.

TRAFFIC CONTROL DEVICES SHALL BE KEPT IN PROPER POSITION, CLEAN AND LEGIBLE, REGARDLESS OF VARYING CONDITIONS.

TRAFFIC SHALL BE MAINTAINED IN ACCORDANCE WITH ALL THE PROVISIONS OF ITEM 619.01-BASIC WORK ZONE TRAFFIC CONTROL, OR AS AMENDED IN THESE PLANS.

THE MINIMUM AVAILABLE TRAVEL LAND WIDTH AT ANY TIME SHALL BE 10 FT.

WEEDS, SHRUBBERY, CONSTRUCTION MATERIALS, EQUIPMENT, VEHICLES OR WORKERS SHALL NOT OBSCURE TRAFFIC CONTROL DEVICES OR OBSTRUCT TRAFFIC. THE CONTRACTOR SHALL BE REQUIRED TO TRIM ANY FOLIAGE OBSTRUCTION THE VISIBILITY OF ANY TRAFFIC CONTROL DEVICES, WHETHER PERMANENT, TEMPORARY, OR CONSTRUCTION, AS DETERMINED BY THE ENGINEER.THE COST SHALL BE INCLUDED IN THE PRICE BID FOR BASIC WORK ZONE TRAFFIC CONTROL, ITEM 619.01.

THE CONTRACTOR SHALL TAKE EXTRA CARE TO MAINTAIN A DUST FREE ENVIRONMENT. CALCIUM CHLORIDE AND/OR WATER SHALL BE APPLIED FOR DUST CONTROL AS DETERMINED BY THE ENGINEER. THE COST SHALL BE INCLUDED IN THE PRICED BID FOR BASIC WORK ZONE TRAFFIC CONTROL, ITEM 619.01.

THE LUMP SUM PRICE BID FOR ITEM 619.01, BASIC WORK ZONE TRAFFIC CONTROL SHALL INCLUDE ALL EQUIPMENT, MATERIALS, AND LABOR NECESSARY TO ADEQUATELY AND SAFELY MAINTAIN AND PROTECT TRAFFIC, EXCEPT AS PROVIDED FOR IN SEPARATE PAYMENT ITEMS IN THE PROPOSAL.

WARNING LIGHTS MOUNTED ON BARRICADES OR OTHER CHANNELIZING DEVICES SHALL BE A STEADY BURN, LOW INTENSITY LIGHT, EXCEPT FOR THE FIRST ONE (1)IN THE SERIES WHICH SHALL BE A HIGH INTENSITY FLASHING LIGHT. PLASTIC DRUMS(C5-1) OR TYPE III BARRICADES MAY BE PLACED ALONG PAVEMENT TAPERS. REFER TO N.Y.S.D.O.T. STANDARD SHEET 619-02 FOR TYPE III BARRICADES WITH WARNING LIGHTS AND TABLE 619.3B OF THE NYSDOT STANDARD SPECIFICATIONS.

GENERAL NOTES (CONT.):

THE CONTRACTOR SHALL USE STEEL PLATES, TEMPORARY PAVEMENT, CONES,BARRELS, BARRICADES AND PROTECTIVE FENCING AS NECESSARY AND AS DIRECTED BY THE ENGINEER TO PROTECT AND MAINTAIN BOTH PEDESTRIAN AND TRAFFIC FLOW WITHIN THE PROJECT AREA. COST TO BE INCLUDED IN THE PRICE BID FOR BASIC WORK ZONE TRAFFIC CONTROL, ITEM 619.01.

ALL LANE TAPERS AND TRANSITIONS SHALL BE IN ACCORDANCE WITH TABLE 6H-4 OF THE N.M.U.T.C.D. OR AS DETERMINED BY THE ENGINEER.

ALL DROP-OFFS FROM EDGES OF TRAVELED WAY SHALL BE ADDRESSED PER THE CONDITIONS AND DIRECTIONS SET FORTH IN SECTION 619-3.02 PARAGRAPH K AND TABLE 619-4 OF THE N.Y.S.D.O.T STAND SPECIFICATIONS. NO DROP-OFF SHALL REMAIN OVER A WEEKEND OR HOLIDAY. AS DROP-OFF IS CONSIDERED ELIMINATED IF TAPERED AWAY BY A 1-ON-E OR FLATTER SLOPE.

SPECIAL ATTENTION SHALL BE GIVEN BY THE CONTRACTOR TO THE MAINTENANCE OF A SATISFACTORY TRAVELED WAY DURING THE SHUTDOWN OF CONSTRUCTIONS OPERATIONS IN COMPLIANCE WITH THE REQUIREMENTS OF SECTION 619.01, BASIC WORK ZONE TRAFFIC CONTROL.

WHEN THE VISIBILITY OF THE TRAVELING PUBLIC IS RESTRICTED DUE TO WEATHER CONDITIONS AND/OR THE WORK OPERATIONS COMMENCE PRIOR TO DAWN OR CONTINUED BEYOND DUSK, FLASHING BEACONS AND STEADY BURNING LIGHTS SHALL BE PROVIDED BY THE CONTRACTOR AND PLACED AS DIRECTED BY THE ENGINEER. IF FLAGGING OPERATION IS NECESSARY BEYOND DAYLIGHT HOURS, FLAGGERS ARE TO USE FLASHLIGHTS WITH ORANGE CONES ATTACHES PER M.U.T.C.D..

THE WORK AREA IS TO BE CLEANED DAILY AND LEFT IN A MANNER ACCEPTABLE TO THE ENGINEER.

WORK AREA NOTES:

THE CONTRACTOR SHALL COORDINATE ANY WORK WITH OTHER CONTRACTORS, UTILITY COMPANIES, OR MUNICIPALITIES IN ORDER TO ENSURE ALL TRAFFIC IS PROPERLY AND SAFELY MAINTAINED AND PROTECTED.

CONTRACTORS VEHICLES NOTES:

VEHICLES OR EQUIPMENT BELONGING TO THE CONTRACTOR'S EMPLOYEES SHALL NOT BE PARKED WITHIN THE CLEAR ZONE, ON THE PAVEMENT SHOULDERS ALONG THE ROADWAY WHERE PARKING IS NOT NORMALLY PERMITTED, OR ANY OTHER AREAS DEEMED HAZARDOUS BY THE ENGINEER.

VEHICLES OR EQUIPMENT BELONGING TO THE CONTRACTOR OR THE EMPLOYEES SHALL NOT BE PARKED IN A MANNER WHICH OBSTRUCTS SIGNS, BARRIERS, BARRICADES, OR OTHER TRAFFIC CONTROL DEVICES.

VEHICLES BELONGING TO THE CONTRACTOR OR CONTRACTOR'S EMPLOYEES ALSO SHALL NOT BE PARKED IN A MANNER WHICH INTERFERES WITH ACCESS TO ABUTTING PROPERTIES.

VEHICLES PARKED BEHIND GUIDE RAIL/BARRIER SHALL BE PARKED BEYOND THE GUIDE RAIL/BARRIER DEFLECTION DISTANCE.

THE CONTRACTOR SHALL PLAN AND INCORPORATE ACCESS POINTS INTO THE WORK ZONE SUCH THAT, TO THE EXTENT PRACTICAL, THE CONTRACTOR'S VEHICLES ENTERING AND LEAVING THE WORK ZONE SHALL NOT IMPEDE THE MOVEMENT OF THROUGH TRAFFIC IN THE ADJACENT OPEN LANES.

WHERE CONTRACTORS' VEHICLES ENTER OR EXIT A WORK ZONE A SPOTTER/FLAGGER MAY BE REQUIRED AS DETERMINED BY THE ENGINEER. FLAGGER/SPOTTER SHALL MEET ALL REQUIREMENTS AS SPECIFIED IN FLAGGER NOTES. COST OF THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR BASIC WORK ZONE TRAFFIC CONTROL, ITEM 619.01.

CONSTRUCTION AND TRAFFIC SIGNAGE NOTES:

ALL SIGNS AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH THE M.U.T.C.D. WITH N.Y.S. SUPPLEMENT. THE LOCATIONS OF THE SIGNS SHOWN ON THE TRAFFIC CONTROL PLANS AND DETAILS, FOUND IN THE CONTRACT DOCUMENTS, ARE APPROXIMATE. THE EXACT LOCATIONS SHALL BE DETERMINED BY THE ENGINEER.

ANY EXISTING SIGNS WHICH CONFLICT WITH WORK ZONE TRAFFIC CONTROL SIGN LAYOUT SHALL BE COVERED, REMOVED, STORED OR RESET, AS DETERMINED BY THE ENGINEER. BLANK COVERS USED TO COVER PORTIONS OF EXISTING SIGNS SHALL BE OF A COLOR AND REFLECTORIZED MATERIAL MATCHING THAT OF THE SIGN BEING PARTIALLY COVERED.

THE MODIFICATION, RELOCATION OR ADJUSTMENT OF EXISTING SIGNS FOR WORK ZONE TRAFFIC CONTROL PURPOSES, NOT ALREADY SHOWN ON THE PLANS. SHALL BE INCLUDED IN THE PRICE BID FOR BASIC WORK ZONE TRAFFIC CONTROL, ITEM 619.01

CONSTRUCTION AND TRAFFIC SIGNAGE NOTES (CONT.):

SIGNS AT OR NEAR INTERSECTIONS SHALL BE PLACED SO THEY DO NOT OBSTRUCT A MOTORIST'S LINE OF SIGHT.

THE COST FOR PROVIDING, INSTALLING, MAINTAINING, AND REMOVING CONSTRUCTION SIGNS SHALL BE INCLUDED IN THE AMOUNT BID FOR ITEM 619.01,BASIC WORK ZONE TRAFFIC CONTROL.

ALL EXISTING TRAFFIC AND PARKING SIGNS WITHIN THE CONTRACT LIMITS SHALL BE MAINTAINED BY THE CONTRACT THROUGHOUT THE ENTIRE PERIOD OF CONSTRUCTION UNTIL THESE SIGNS ARE REPLACED WITH PERMANENT SIGNS OR COVERED WHEN THEY DIRECTLY CONFLICT WITH THE MAINTENANCE AND PROTECTION OF TRAFFIC. THIS INCLUDES SIGNAGE AT INTERSECTING STREETS.

TRAFFIC MAINTENANCE SIGNS NOT CONSISTENT BETWEEN WORKING AND/ OR NON-WORKING HOURS SHALL BE COVERED AND/OR REMOVED FROM THE DRIVER'S VISION WHEN NOT IN USE.

PORTABLE SIGN SUPPORTS WILL BE ALLOWED ON AT LOCATIONS DEPICTED ON DETAILS OR LOCATIONS APPROVED BY THE ENGINEER. PORTABLE SIGN SUPPORTS SHALL ADHERE TO THE PROVISIONS OF THE N.M.U.T.C.D.. LATERAL PLACEMENT OF PORTABLE SIGNS SHALL BE SUCH TO ACHIEVE MAXIMUM VISIBILITY.

SIGN SUPPORTS SHALL BE SUCH AS TO RESIST OVERTURNING IN STRONG WINDS AND PROVIDE A MINIMUM MOUNTING HEIGHT OF 7'-0" MEASURED TO BOTTOM OF SIGN.

THE COVERING AND/OR REMOVING, RELOCATING, AND REPLACING OF EXISTING SIGN PANELS AND ASSEMBLIES SHALL BE AS DIRECTED BY THE ENGINEER. PAYMENT SHALL BE INCLUDED IN THE PRICE BID FOR BASIC WORK ZONE TRAFFIC CONTROL,ITEM 619.01.

CARE SHOULD BE TAKEN NOT TO DAMAGE ANY EXISTING PERMANENT SIGNS TO REMAIN. ANY SIGN DAMAGED SHALL BE REPLACED BY THE CONTRACTOR, AT NO ADDITIONAL COST TO THE OWNER.

ALL CONSTRUCTIONS SIGNS SHALL BE NEW OR IN LIKE NEW CONDITION.

DELINEATION AND GUIDING DEVICES NOTES:

PAYMENT FOR CHANNELIZATION DEVICES IS INCLUDED UNDER ITEM 619.01, BASIC WORK ZONE TRAFFIC CONTROL, UNLESS PROVIDED FOR WITH SPECIFIC ITEMS IN THE CONTRACT DRAWINGS AND SPECIFICATIONS.

CONSTRUCTION ZONE PAVEMENT MARKINGS SHALL BE APPLIED PER SECTION 619OF THE NYSDOT STANDARD SPECIFICATIONS AND SHALL CONFORM TO THE PROJECT'S PERMANENT MARKINGS WITH RESPECT TO COLOR AND PATTERN. PAYMENT SHALL BE BASED ON 4 INCH LINE WIDTHS. THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR BASIC WORK ZONE TRAFFIC CONTROL, ITEM 619.01.

ANY EXISTING PAVEMENT MARKINGS WHICH CONFLICT WITH THE TRAFFIC CONTROL PLAN SHALL BE MOVED AS DETERMINED BY THE ENGINEER. THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR BASIC WORK ZONE TRAFFIC CONTROL, ITEM 619.01.

THE CONTRACTOR SHALL MAINTAIN EXISTING PAVEMENT MARKINGS WITHIN THE CONSTRUCTION LIMITS AS DETERMINED BY THE ENGINEER. PAYMENT SHALL BE INCLUDED IN THE PRICE BID FOR BASIC WORK ZONE TRAFFIC CONTROL, ITEM 619.01.

DELINEATION AND GUIDING DEVICES AT OR NEAR INTERSECTIONS SHALL BE PLACED SO THAT THEY DO NOT OBSTRUCT A MOTORIST'S LINE OF SIGHT.

WHERE POSSIBLE ALL DELINEATION AND GUIDING DEVICES ARE TO BE PLACED SO AS TO PROVIDE A MINIMUM 2'-0" CLEARANCE TO THE TRAVELED WAY UNLESS OTHERWISE SHOWN ON THE PLANS.

ALL TRAFFIC CONTROL DEVICES INITIALLY FURNISHED FOR THIS PROJECT SHALL BE IN ACCEPTABLE CONDITION AS DEFINED BY THE GUIDELINES PAMPHLET DEVELOPED BY THE AMERICAN TRAFFIC SAFETY SERVICE ASSOCIATION (ATSSA). AS THE CONDITION OF DEVICES DETERIORATE OVER TIME, THOSE THAT FALL BELOW THE MARGINAL CATEGORY SHALL BE REPLACED.

ACCESS NOTES:

THE CONTRACTOR SHALL PLAN AND INCORPORATE ACCESS POINTS INTO THE WORK ZONE SUCH THAT, TO THE EXTENT PRACTICAL. THE CONTRACTORS VEHICLES ENTERING AND LEAVING THE WORK ZONE SHALL NOT IMPEDE THE MOVEMENT OF THROUGH TRAFFIC IN THE ADJACENT OPEN LANES.

WHERE CONTRACTORS VEHICLES ENTER OR EXIT A WORK ZONE A SPOTTER/FLAGGER MAY BE REQUIRED AS DETERMINED BY THE ENGINEER. FLAGGER/SPOTTER SHALL MEET ALL REQUIREMENT AS SPECIFIED IN FLAGGER NOTES COST FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR BASIC WORK ZONE TRAFFIC CONTROL, ITEM 619.01.

ACCESS TO RESIDENTIAL AND COMMERCIAL DRIVEWAYS SHALL BE MAINTAINED AT ALL TIMES, UNLESS OTHER AGREEMENTS, SUITABLE TO THE OWNERS CAN BE MADE PROPERTY OWNERS WHOSE DRIVEWAYS WILL BE MADE INACCESSIBLE SHALL BE NOTIFIED BY THE CONTRACTOR AT LEAST 24 HOURS PRIOR TO RESTRICTING USE OF THE DRIVE. THE CONTRACTOR SHALL MAINTAIN ACCESS TO COMMERCIAL DRIVEWAYS AT ALL TIMES WHEN A FACILITY IS IN USE. FOR MULTIPLE ACCESS PROPERTIES, ONLY ONE DRIVEWAY MAY BE CLOSED AT ONE TIME. ACCESS SHALL BE RESTORED TO ALL DRIVEWAYS AS SOON AS POSSIBLE

WHEN DIRECT ACCESS TO DRIVEWAYS IS NOT POSSIBLE DUE TO NECESSARY CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL PLAN ALTERNATIVE MEANS OF ACCESS AND SUBMIT SUCH PLANS TO THE ENGINEER FOR APPROVAL. COST FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR BASIC WORK ZONE TRAFFIC CONTROL, ITEM 619.01.

SUITABLE RAMPS SHALL BE INSTALLED TO MAINTAIN SMOOTH TRANSITIONS FROM RESIDENTIAL AND COMMERCIAL DRIVEWAYS TO AND FROM THE WORK AREA. THE MATERIAL SHALL CONSIST OF CRUSHED STONE OR ASPHALT CONCRETE, WHICHEVER IS DEEMED MORE APPROPRIATE FOR THE CIRCUMSTANCE, AS DETERMINED BY THE ENGINEER. THE SIDEWALK PORTION OF ANY TEMPORARY RAMP MUST BE CONSTRUCTED WITH A FIRM, STABLE AND SLIP RESISTANT MATERIAL SUCH AS ASPHALT OR CONCRETE. PLASTIC DRUMS OR OTHER APPROVED TRAFFIC CONTROL DEVICES SHALL BE SUED TO DELINEATE THE DRIVEWAY AND TO CONTROL ACCESS DURING NON-WORKING HOURS. THE COST FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR BASIC WORK ZONE TRAFFIC CONTROL, ITEM 619.01.

NOTIFICATIONS AND EMERGENCY ACCESS NOTES:

RESPONSIBILITY FOR EMERGENCY REPAIRS – THE CONTRACTOR SHALL SUBMIT TO THE APPROPRIATE LAW ENFORCEMENT AND EMERGENCY AGENCIES IN WRITING THE NAME, ADDRESS, AND TELEPHONE NUMBER OF THE PERSON OR PERSONS AUTHORIZED TO SECURE LABOR, MATERIALS, AND EQUIPMENT FOR EMERGENCY REPAIRS OUTSIDE OF NORMAL WORKING HOURS. DUPLICATE COPIES OF THE ABOVE SHALL BE FILED WITH THE ENGINEER.

THE CONTRACTOR SHALL NOTIFY LOCAL AUTHORITIES FOR EMERGENCY SERVICES IN ADVANCE OF ANY SUBSTANTIAL CHANGE IN TRAFFIC PATTERNS.

AT LEAST ONE 10 FEET WIDE TRAVEL LANE OF SAFELY TRAVERSABLE ROAD IN EACH DIRECTION OR ONE 10 FEET WIDE TRAVEL LANE OF SAFELY TRAVERSABLE ROAD WITH THE USE OF FLAGGERS MUST BE MAINTAINED THROUGHOUT THE PROJECT AREA AT ALL TIMES FOR EMERGENCY VEHICLES. WORK ON ONE SIDE OF THE HIGHWAY SHALL BE COMPLETED PRIOR TO ESTABLISHING A WORK AREA ON THE OPPOSITE SIDE.

FLAGGERS NOTES:

FLAGGING OPERATIONS FOR THIS PROJECT SHALL BE IN ACCORDANCE WITH THE PLANS. THE N.M.U.T.C.D. WITH N.Y.S. SUPPLEMENT, AND SECTION 619 OF THE STANDARD SPECIFICATIONS.

FLAGGERS SIGNS SHALL NOT BE USED FOR BRIEF PERIODS OF INCIDENTAL FLAGGING, AS DETERMINED BY THE ENGINEER. FLAGGER SIGNS SHALL NOT BE VISIBLE WHILE FLAGGERS ARE NOT BEING USED.

AT ALL TIMES, THE CONTRACTOR SHALL PROVIDE FLAGGERS WITH A CLEAR ESCAPE PATH, FREE OF PARKED VEHICLES, EQUIPMENT OR OTHER OBSTACLES. THE FLAGGING STATION SHOULD NOT BE LOCATED IN LANES BEING USED BY MOVING TRAFFIC, WHERE WORKERS GATHER, OR WHERE THE FLAGGERS VEST WOULD NOT CONTRAST WITH THE BACKGROUND. THE STATION SHALL BE LOCATED FAR ENOUGH AHEAD OF THE WORK SPACE SO THAT APPROACHING TRAFFIC HAS SUFFICIENT DISTANCE TO STOP BEFORE ENTERING THE WORK SPACE. THE FLAGGER SHOULD MOVE INTO A LAND ONLY AFTER TRAFFIC HAS STOPPED AND ONLY IF THE FLAGGER NEEDS TO BE VISIBLE TO OTHER TRAFFIC OR MUST COMMUNICATE WITH DRIVERS.

PEDESTRIAN NOTES:

THE CONTRACTOR SHALL PROVIDE, DELINEATE AND MAINTAIN A USABLE PATH OF TRAVEL FOR PEDESTRIANS EITHER THROUGH OR AROUND WORK ZONES FOR THE DURATION OF THE PROJECT, IN ACCORDANCE WITH THE PLANS. THE PATH OF TRAVEL SHALL COMPLY WITH THE "CONTINUOUS PASSAGE" PROVISIONS OF THE CURRENT AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES (ADAAG) AND THE 2011 PROPOSED ACCESSIBILITY GUIDELINES FOR PEDESTRIAN FACILITIES IN THE PUBLIC RIGHT OF WAY (PROWAG). THE CONTRACTOR MAY UTILIZE ANY COMBINATION OF THE FOLLOWING TO PROVIDE THE USABLE PATH OF TRAVEL.EXISTING SIDEWALKS/SHOULDERS; TEMPORARY SIDEWALKS/SHOULDERS; FINAL SIDEWALKS/SHOULDERS; AND EXISTING OR TEMPORARY SIDEWALK CURB RAMPS. THE USABLE TRAVEL PATH SHALL BE CLEARLY MARKED AND STAGED BETWEEN INTERSECTING ROADS TO ENSURE SAFE PEDESTRIAN CROSSING AND ACCESSIBILITY.PEDESTRIAN ACCESS TO RESIDENTIAL AND COMMERCIAL PROPERTIES SHALL BE MAINTAINED FOR THE DURATION OF CONSTRUCTION.

PEDESTRIAN TRAFFIC SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION. THE CONTRACTOR SHALL FOLLOW THE STANDARD SHEETS TO CROSS PEDESTRIANS AT THE CLOSEST CROSSWALK POSSIBLE.

THE CONTRACTOR SHALL CONDUCT WORK OPERATIONS TO MINIMIZE THE INTERRUPTION OF PEDESTRIAN TRAFFIC. THE TEMPORARY STORAGE OF CONSTRUCTION EQUIPMENT OR MATERIALS SHALL NOT BE PERMITTED ON ANY USABLE TRAVEL PATH THAT IS OPEN TO PEDESTRIAN TRAFFIC.

ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO INSTALL AND REMOVE TEMPORARY SIDEWALK AND CURB RAMPS, INCLUDING THE RESTORATION OF DISTURBED AREAS, SHALL BE INCLUDED IN THE PRICE BID FOR BASIC WORK ZONE TRAFFIC CONTROL, ITEM 619.01.

LANE CLOSURE NOTES:

A SINGLE, LONG LANE CLOSURE IS PREFERRED OVER A SERIES OF SUCCESSIVE SHORTER LANE CLOSURES. THE LENGTH OF THE LANE CLOSURE SHALL BE THE MINIMUM NECESSARY TO ACCOMPLISH THE PLANNED WORK SAFELY AND EFFICIENTLY. THE APPROPRIATE LENGTH OF LANE CLOSURE SHALL BE DETERMINED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.

THE CONTRACTOR SHALL START SHORT TERM LANE CLOSURES TO PROVIDE OPTIMUM VISIBILITY, (I.E. BEFORE CURVES AND CRESTS). TO THE EXTENT PROJECT AND TRAFFIC CONDITIONS PERMIT.

THE CONTRACTOR SHALL NOT MIX CHANNELIZATION DEVICES IN A LINEAR CLOSURE OR TAPER (I.E. CONES, VERTICAL PANELS AND DRUMS SHALL NOT BE USED IN THE SAME TAPER OR CLOSURE). HOWEVER, DIFFERENT CHANNELIZATION DEVICES MAY BE USED IN DIFFERENT AREAS OF A PROJECT.

IF, IN THE OPINION OF THE ENGINEER, SHORT TERM LANE CLOSURES ARE CREATING EXCESSIVE DELAYS TO TRAFFIC OR ARE CREATING A SAFETY CONCERN DUE TO SLOW OR STOPPED TRAFFIC, AFFECTED LANE CLOSURES SHALL BE REMOVED AND THE ROADWAY OPENED TO TRAFFIC.

THE ENGINEER MAY REQUIRE THAT ALL LANES BE RE-OPENED AT ANY TIME IF THE ROUTE IS NEEDED FOR EMERGENCY PURPOSES. THIS COULD INCLUDE INCIDENTS AT LOCATIONS NOT WITHIN THE PROJECT LIMITS.

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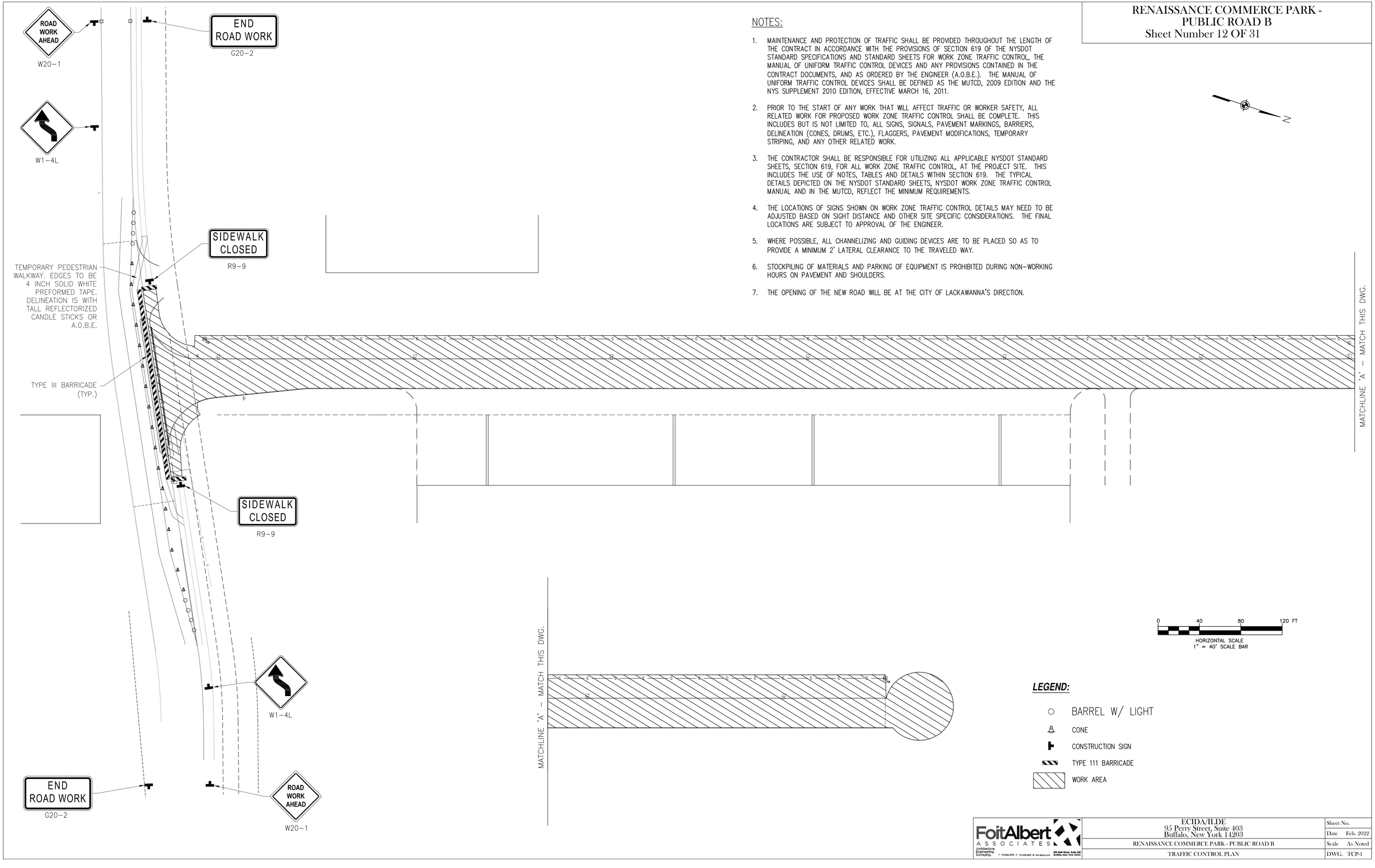
RENAISSANCE COMMERCE PARK - PUBLIC ROAD B	Scale As Noted
GENERAL NOTES	DWG. GN-3

RENAISSANCE COMMERCE PARK - PUBLIC ROAD B
Sheet Number 12 OF 31

NOTES:

1. MAINTENANCE AND PROTECTION OF TRAFFIC SHALL BE PROVIDED THROUGHOUT THE LENGTH OF THE CONTRACT IN ACCORDANCE WITH THE PROVISIONS OF SECTION 619 OF THE NYSDOT STANDARD SPECIFICATIONS AND STANDARD SHEETS FOR WORK ZONE TRAFFIC CONTROL, THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AND ANY PROVISIONS CONTAINED IN THE CONTRACT DOCUMENTS, AND AS ORDERED BY THE ENGINEER (A.O.B.E.). THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES SHALL BE DEFINED AS THE MUTCD, 2009 EDITION AND THE NYS SUPPLEMENT 2010 EDITION, EFFECTIVE MARCH 16, 2011.
2. PRIOR TO THE START OF ANY WORK THAT WILL AFFECT TRAFFIC OR WORKER SAFETY, ALL RELATED WORK FOR PROPOSED WORK ZONE TRAFFIC CONTROL SHALL BE COMPLETE. THIS INCLUDES BUT IS NOT LIMITED TO, ALL SIGNS, SIGNALS, PAVEMENT MARKINGS, BARRIERS, DELINEATION (CONES, DRUMS, ETC.), FLAGGERS, PAVEMENT MODIFICATIONS, TEMPORARY STRIPING, AND ANY OTHER RELATED WORK.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR UTILIZING ALL APPLICABLE NYSDOT STANDARD SHEETS, SECTION 619, FOR ALL WORK ZONE TRAFFIC CONTROL, AT THE PROJECT SITE. THIS INCLUDES THE USE OF NOTES, TABLES AND DETAILS WITHIN SECTION 619. THE TYPICAL DETAILS DEPICTED ON THE NYSDOT STANDARD SHEETS, NYSDOT WORK ZONE TRAFFIC CONTROL MANUAL AND IN THE MUTCD, REFLECT THE MINIMUM REQUIREMENTS.
4. THE LOCATIONS OF SIGNS SHOWN ON WORK ZONE TRAFFIC CONTROL DETAILS MAY NEED TO BE ADJUSTED BASED ON SIGHT DISTANCE AND OTHER SITE SPECIFIC CONSIDERATIONS. THE FINAL LOCATIONS ARE SUBJECT TO APPROVAL OF THE ENGINEER.
5. WHERE POSSIBLE, ALL CHANNELIZING AND GUIDING DEVICES ARE TO BE PLACED SO AS TO PROVIDE A MINIMUM 2' LATERAL CLEARANCE TO THE TRAVELED WAY.
6. STOCKPILING OF MATERIALS AND PARKING OF EQUIPMENT IS PROHIBITED DURING NON-WORKING HOURS ON PAVEMENT AND SHOULDERS.
7. THE OPENING OF THE NEW ROAD WILL BE AT THE CITY OF LACKAWANNA'S DIRECTION.



LEGEND:

- ○ BARREL W/ LIGHT
- CONE
- CONSTRUCTION SIGN
- TYPE 111 BARRICADE
- WORK AREA

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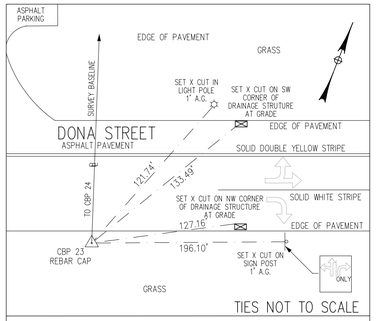
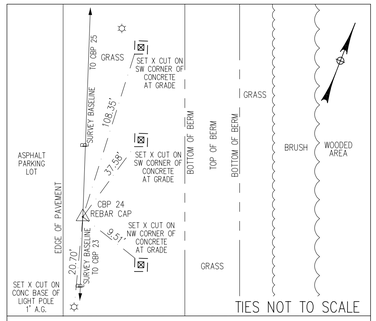
RENAISSANCE COMMERCE PARK - PUBLIC ROAD B	Scale As Noted
TRAFFIC CONTROL PLAN	DWG. TCP-1

HORIZONTAL ROADWAY ALIGNMENT ROAD B

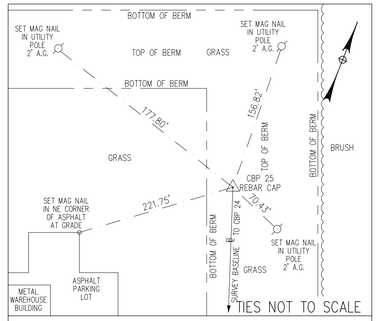
1	ELEMENT: LINEAR POB STA. B 0+00.00 N 1025851.3482 E 1077321.6777 POE STA. B 15+65.35 N 1027336.4868 E 1076287.0111 LENGTH: 1,565.35' BEARING: N 18° 25' 18" W



CBP 23 ℄ STA. 10+00.00		
NYSPCS WEST ZONE	NAD83 (2011) EPOCH 2010.00	C.F. 0.99992087
N 1025804.496	E 1077296.756	



CBP 24 ℄ STA. 16+81.78		
NYSPCS WEST ZONE	NAD83 (2011) EPOCH 2010.00	C.F. 0.99992087
N 1026439.445	E 1077048.421	



CBP 25 ℄ STA. 22+75.40		
NYSPCS WEST ZONE	NAD83 (2011) EPOCH 2010.00	C.F. 0.99992087
N 1027002.022	E 1076858.989	

BENCHMARKS

BM–1	SET X CUT ON EAST SIDE OF LIGHT POLE BASE ELEVATION = 586.73' N 1025859.5578 E 1077149.2501
BM–2	SET X CUT ON HYDRANT EAST BONNET BOLT ELEVATION = 587.37' N 1026667.3672 E 1076913.3613
BM–3	SET RAILROAD SPIKE IN UTILITY POLE ELEVATION = 589.57' N 1027150.6109 E 1076805.5129

HORIZONTAL CONTROL TABLE – ROAD B

H.C.L. POINT	H.C.L. STA.	NORTHING	EASTING
POB	B 0+00.00	1025851.3482	1077321.6777
POE	B 15+65.35	1027336.4868	1076827.0111

NOTES:

1. THIS BASE MAP WAS PREPARED FROM A FIELD SURVEY COMPLETED ON 8/31/2021.
2. COORDINATES ARE REFERENCED TO THE NEW YORK STATE PLANE COORDINATE SYSTEM WEST ZONE, NAD 83.
3. ELEVATIONS ARE REFERENCED TO THE NAVD 88 VERTICAL DATUMN.

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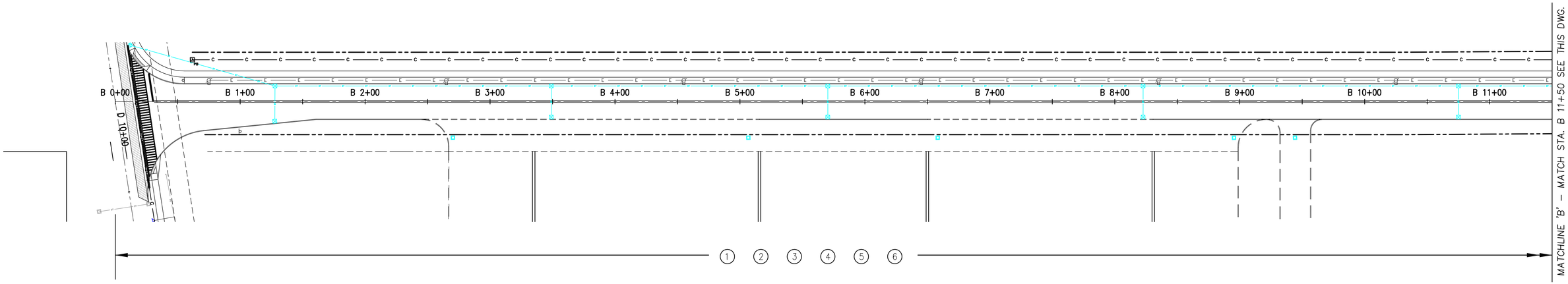
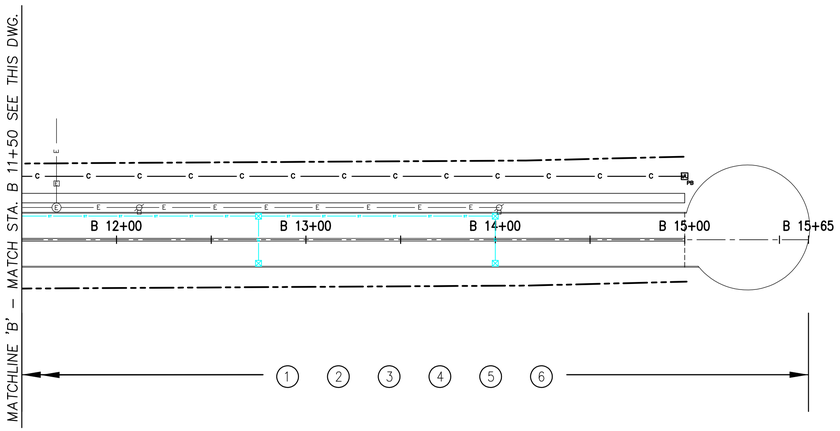
RENAISSANCE COMMERCE PARK - PUBLIC ROAD B

HORIZONTAL CONTROL PLAN, BASELINE TIES AND BENCHMARKS



PLAN

NOT TO SCALE



PLAN

NOT TO SCALE

MAINTENANCE JURISDICTION TABLE							
SECTION No.	HIGHWAY	LIMITS		FEATURES	FEET	LANE FEET	AGENCY
		STA	STA				
1	ROAD B	B 0+00.00	B 15+00.00	PAVEMENT, DRAINAGE SYSTEM, STRIPING, SIDEWALK, LIGHTING AND SIGNS	1500	3000	CITY OF LACKAWANNA
SNOW AND ICE CONTROL							
2	ROAD B	B 0+00.00	B 15+00.00	SNOW AND ICE ON HIGHWAY	1500	3000	CITY OF LACKAWANNA
UTILITIES							
3	OVERHEAD ELECTRIC			POLES AND ELECTRIC LINES			NATIONAL GRID
4	OVERHEAD TELEPHONE			POLES AND TELEPHONE LINES			VERIZON
5	OVERHEAD CABLE			CABLE LINES			SPECTRUM

MAINTENANCE AND JURISDICTION NOTES:

1. 'SECTION No.' IN THE TABLE REFERS TO CORRESPONDING CIRCLED NUMBER ON ABOVE PLAN.
2. ALL EXISTING MUNICIPALLY OR PRIVATELY OWNED UTILITIES WITHIN THE LIMITS OF THE HIGHWAY RIGHT OF WAY (R.O.W.), WHICH REMAIN IN SERVICE UNCHANGED AND ALL SUCH FACILITIES RELOCATED AS A PART OF THE WORK PERFORMED UNDER THIS PROJECT, WHETHER CROSSING, LOCATED WITHIN OR ADJACENT TO THE R.O.W., SHALL BE MAINTAINED BY THE MUNICIPALITY OR BY THE PRIVATE OWNER AT NO COST OR EXPENSE TO THE COUNTY.
3. THE PORTION OF A DRIVEWAY OR PRIVATE ROAD CONSTRUCTED OR ADJUSTED UNDER THE PROJECT BETWEEN THE EDGE OF THE TRAVEL LANE AND THE OUTSIDE EDGE OF THE SHOULDER, OR GUTTER LINE, SHALL BE MAINTAINED BY THE COUNTY. THE REMAINING PORTION OF THE DRIVEWAY OR PRIVATE ROAD SHALL BE MAINTAINED BY THE OWNER(S).

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RENAISSANCE COMMERCE PARK - PUBLIC ROAD B	Scale As Noted
MAINTENANCE JURISDICTION PLAN	DWG. MJP-1

TREE REMOVAL TABLE

APPROXIMATE STATION	ITEM 614.060204	ITEM 614.060304	ITEM 614.060404
B 0+65		1	
B 0+74	1		
B 0+85		1	
B 0+85		1	
B 0+85	1		
B 1+05	1		
B 1+05		1	
B 1+05		1	
B 1+35		1	
B 1+37	1		
B 1+37		1	
B 1+38		1	
B 1+51		1	
B 1+52		1	
B 1+52	1		
B 1+58	1		
B 1+66	1		
B 1+66	1		
B 1+93	1		
B 1+99	1		
B 1+99		1	
B 2+49	1		
B 2+49	1		
B 2+55		1	
B 2+77		1	
B 3+28		1	
B 3+28		1	
B 3+29	1		
B 3+29	1		
B 3+30		1	
B 3+36			1
B 3+37	1		
B 3+50	1		
B 3+80	1		
B 3+82	1		
B 4+16	1		
B 4+51		1	
B 4+59		1	

TREE REMOVAL TABLE (CONTINUED)

APPROXIMATE STATION	ITEM 614.060204	ITEM 614.060304	ITEM 614.060404
B 4+60	1		
B 4+64	1		
B 4+65	1		
B 4+66	1		
B 4+67	1		
B 4+69	1		
B 4+70	1		
B 4+76	1		
B 4+78		1	
B 4+79	1		
B 5+18	1		
B 5+30	1		
B 5+98	1		
B 5+98	1		
B 6+02	1		
B 6+04		1	
B 6+10	1		
B 6+12	1		
B 6+17	1		
B 6+17	1		
B 6+22	1		
B 6+29	1		
B 6+36	1		
B 6+45	1		
B 6+47	1		
B 6+60	1		
B 6+60		1	
B 6+70	1		
B 6+73		1	
B 6+73	1		
B 6+74	1		
B 6+89	1		
B 7+06	1		
B 7+11	1		
B 7+20		1	
B 7+65		1	
B 8+00	1		
B 8+26			1

TREE REMOVAL TABLE (CONTINUED)

APPROXIMATE STATION	ITEM 614.060204	ITEM 614.060304	ITEM 614.060404
B 9+77	1		
B 9+86	1		
TOTALS	53	24	2

ITEM 209.19 – SUBSTRUCTURE REMOVAL TABLE

STATION	OFFSET (FT.)	SIDE	LENGTH (FT.)	WIDTH (FT.)	DEPTH (FT.)	VOLUME (CY)
B 2+80	2	LT	5	6	3	3.33
B 3+24	2	RT	8	4	3	3.56
B 4+10	14	RT	7	2	3	1.56
B 4+38	VAR.	RT & LT	20	10	3	22.22
B 7+32	4.5	LT	25	4.5	3	12.50
B 7+32	9	LT	1.75	19	3	3.69
B 7+34	9	LT	3.5	3.7	3	1.44
B 7+38	9	LT	1.75	5.5	3	1.07
B 7+44	9	LT	1.75	6.5	3	1.26
B 7+51	9	LT	1.75	6.5	3	1.26
B 8+14.50	4.5	LT	26	4.5	3	13.00
B 8+14.50	9	LT	1.75	19	3	3.69
B 8+16.30	9	LT	3.5	3.7	3	1.44
B 8+20.80	9	LT	1.75	5.5		0.00
B 8+27	9	LT	1.75	6.5	3	1.26
B 8+33.50	9	LT	1.75	6.5	3	1.26
B 12+29	23	LT	74	10	2	54.81
B 12+74	33	LT	4	5	2	1.48
B 13+03	23	LT	92	27	2	184
VAR.	VAR.	VAR.				63
					TOTAL	375.85

CONCRETE CURB TABLE

BEGIN STATION	BEGIN OFFSET (FT.)	END STATION	END OFFSET (FT.)	SIDE	ITEM 609.09 (FT)	COMMENTS
B 0+02.20	78.45	B 15+00.00	14	LT	1,539	NEW CURB TO TIE–IN TO TRS PACKAGING FACILITY ENTRANCE DRIVE ON DONA ST.
B 0+26.40	80.27	B 15+00.00	14	RT	1,523	TOP OF CURB DEPRESSED 5" AT UNILAND LOADING DOCK LOCATIONS

SIGN TABLE

SIGN TEXT NO.	LOCATION	MUTCD SIGN DESIGNATION	WIDTH x HEIGHT (IN.)	PAYMENT AREA (SF)	QUANTITY	ITEM 645.5202	ITEM 645.81
R1–1	1	R1–1	30 x 30	6.3	1	6.3	1
W14–2	2	W14–1	30 x 30	6.3	1	6.3	1
				TOTALS	2	12.6	2

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Sheet No.	
Date	Feb. 2022
Scale	As Noted
RENAISSANCE COMMERCE PARK - PUBLIC ROAD B	
MISCELLANEOUS TABLES	DWG. MST-1

DRAINAGE QUANTITY TABLE

UPSTREAM DRAINAGE STRUCTURE NO.	STATION	SIDE	OFFSET	RIM	INVERT	DOWNSTREAM DRAINAGE STRUCTURE NO.	SELECT GRANULAR FILL ITEM 203.07 (CY)	TRENCH AND CULVERT EXCAVATION ITEM NO. 206.0201 (CY)	SHIELDS AND SHORING ITEM 552.17 (SF)	18 INCH SICPP PIPE - SOLID ITEM NO. 603.9818 (FT)	15 INCH SICPP PIPE - SOLID ITEM NO. 603.9815 (FT)	ROUND PRECAST MANHOLE TYPE 48 ITEM NO. 604.4048 (FT)	DRAINAGE STRUCTURE TYPE A ITEM NO. 604.300103 (FT)	MANHOLE FRAME AND COVER ITEM NO. 655.1702 (EACH)	WELDED FRAME AND RETICUline GRATE 3 ITEM 655.1103 (EACH)
DS 13	B 14+00	RT	14	584.82	W580.74	DS 14	9.2	4.4					6.0		1
DS 13 TO DS 14							8.2	3.4			22.0				
DS 14	B 14+00	LT	14	584.82	E 580.70 S 580.70	DS 12	7.2	5.5					6.0		1
DS 14 TO DS 12							88.2	40.7			197.0				
DS 12	B 12+75	LT	14	585.02	N 580.40 E 580.40 S 580.40	DS 10	9.3	6.6					6.0		1
DS 11	B 12+75	RT	14	585.02	W 580.44	DS 12	9.2	6.5					6.0		1
DS 11 TO DS 12							8.2	4.1			22.0				
DS 12 TO DS 10				603.00			88.2	43.8			197.0				
DS 10	B 10+75	LT	14	584.72	N 580.10 E 580.10 S 580.10	DS 8	9.3	6.0					6.0		1
DS 9	B 10+75	RT	14	584.72	W 580.14	DS 10	12.0	9.3					6.0		1
DS 9 TO DS 10							7.4	4.9			22.0				
DS 10 TO DS 8							101.0	92.7			249.4				
DS 8	B 8+22.64	LT	14	584.34	N 579.72 E 579.72 S 579.72	DS 6	8.6	12.8					6.0		1
DS 7	B 8+24.64	RT	14	584.34	W 579.76	DS 8	8.5	12.7					6.0		1
DS 7 TO DS 8							7.4	8.6			22.0				
DS 8 TO DS 6							99.1	104.7			246.4				
DS 6	B 5+70.28	LT	14	583.97	N 579.34 E 579.34 S 579.34	DS 4	8.6	12.4					6.1		1
DS 5	B 5+70.28	RT	14	583.97	W 579.39	DS 6	7.8	12.7					6.0		1
DS 5 TO DS 6							7.4	7.8					22.0		
DS6 TO DS 4							88.3	83.7					218.3		
DS 4	B 3+49	LT	14	583.63	N 579.01 E 579.01 S 579.01	DS 2	8.6	12.8					6.0		1
DS 3	B 3+49	RT	14	583.63	W 579.05	DS 4	8.5	11.6					6.0		1
DS 3 TO DS 4							7.2	7.0				22.0			
DS 4 TO DS 2							89.3	93.7				218.1			
DS 2	B 1+27.86	LT	14	583.38	N 578.68 E 578.68 S 578.68	MH B1	8.7	13.0					6.1		1
DS 1	B 1+27.86	RT	17.29	583.31	W 578.73	DS 2	8.5	12.7					6.0		1
DS 1 TO DS 2							8.6	10.3				25.4			
MH B1	D9+34.10	LT	18.6	584.75	NE 584.54 W 584.54	MH B2	17.7	19.9	121.6			6.9		1	
DS 2 TO MH B1							61.8	107.1	1284.8	116.5					
MH B2	D6+45.00	LT	28.2	583.65	E 578.19 W 578.19	MH D1	15.6	17.7	108.3			6.1		1	
MH B1 TO MH B2							99.3		3306.6	285.1					
MH D1	D3+55	LT	28.2	583.32	E 577.84	DONA ST. EXIST.									
MH B2 TO MH D1							99.6	258.9	3107.0	286.0					
						TOTALS	1,026.31	1,057.83	7,928.25	687.60	977.76	278.54	324.53	2.00	14.00

NOTE:
1. OFFSET IS TO THE FRONT FACE OF CURB. RIM ELEVATION IS FINAL GRADE AT FRONT FACE OF CURB MINUS 1"
2. STRUCTURE QUANTITIES ARE BASED ON THE UPSTREAM STRUCTURE. IF LISTED MORE THAN ONCE QUANTITIES WILL BE ON THE FIRST LISTING OF THE STRUCTURE.

UNDER DRAIN FILTER TABLE

LOCATION	STATION TO STATION	SIDE	OPTIONAL UNDER DRAIN PIPE, 6 INCH DIAMETER ITEM 605.1702 (LF)	IUNDERDRAINFILTER STONE ITEM 605.1001 (CY)
DS-14 to DS-12	STA B 14+75 TO STA B 12+75	LT	197	14.55611
DS-12 to DS-10	STA B 12+75 TO STA B 10+75	LT	197	14.56
DS-10 TO DS-8	STA B 10+75 TO STA B 8+22	LT	249.4	18.43
DS-8 TO DS-6	STA B 8+22 TO STA B 5+71	LT	249.4	18.43
DS-6 TO DS-4	STA B 5+70 TO STA B 3 + 49	LT	218.3	16.13
DS-4 TO DS-2	STA B 3+39 TO STA B 1+27	LT	218.1	16.12
STA B0+10 +/- TO DS-2	STA B 1+27 TO STA B 0+10 +/-	LT	136	10.05
DS-13 TO DS-11	STA B 14+75 TO STA B 12+75	RT	197	14.56
DS-11 TO DS-9	STA B 12+75 TO STA B 10+75	RT	197	14.56
DS-9 TO DS-7	STA B 10+75 TO STA B 8+22	RT	249.4	18.43
DS-7 TO DS-5	STA B 8+22 TO STA B 5+71	RT	249.4	18.43
DS-5 TO DS-3	STA B 5+70 TO STA B 3 + 49	RT	218.3	16.13
DS-3 TO DS-1	STA B 3+39 TO STA B 1+27	RT	218.1	16.12
B0+10 +/- TO DS-1	STA B 1+27 TO STA B 0+10 +/-	RT	136	10.05
	TOTALS		**2930.4**	**216.52**

CURB RAMP TABLE

LOCATION				CURB RAMP, TRANSITION AND SIDEWALK				DETECTABLE WARNING		NOTES
CURB RAMP ID	ROADWAY	CROSS STREET	QUAD	COORDINATES		RAMP TYPE	NEW, REPLACEMENT, EXISTING TO REMAIN	ITEM 608.0101 (CY)	ITEM 608.21 (SY)	ORIENTATION (SEE NOTE 2)	COMMENTS
1	DONA	ROAD B	NE	N 1025900.1639	E 1077368.8089	1	NEW	1.91	1.4	OPTION 4	RAMP CENTERLINE, ROAD B STATIONING
2	DONA	ROAD B	NW	N 1025859.5510	E 1077282.8940	3	NEW	1.34	2.2	OPTION 5	RAMP CENTERLINE, ROAD B STATIONING
3	DONA	ROAD B	DWY	N 1025846.1017	E 1077262.8480	1	NEW	1.76	1.78	OPTION 1	

NOTES:

1. FOR RAMP TYPE REFER TO 608.01 STANDARD SHEET (SHEETS 4, 5, 6, AND 7 OF 12) OR MODIFIED TYPE SHOWN IN PLANS.
2. FOR DETECTABLE WARNING ORIENTATION REFER TO 608.01 STANDARD SHEET (SHEET 2 OF 9).
3. DETECTABLE WARNING MAT SHALL BE NYSDOT APPROVED BLACK.

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RENAISSANCE COMMERCE PARK - PUBLIC ROAD B
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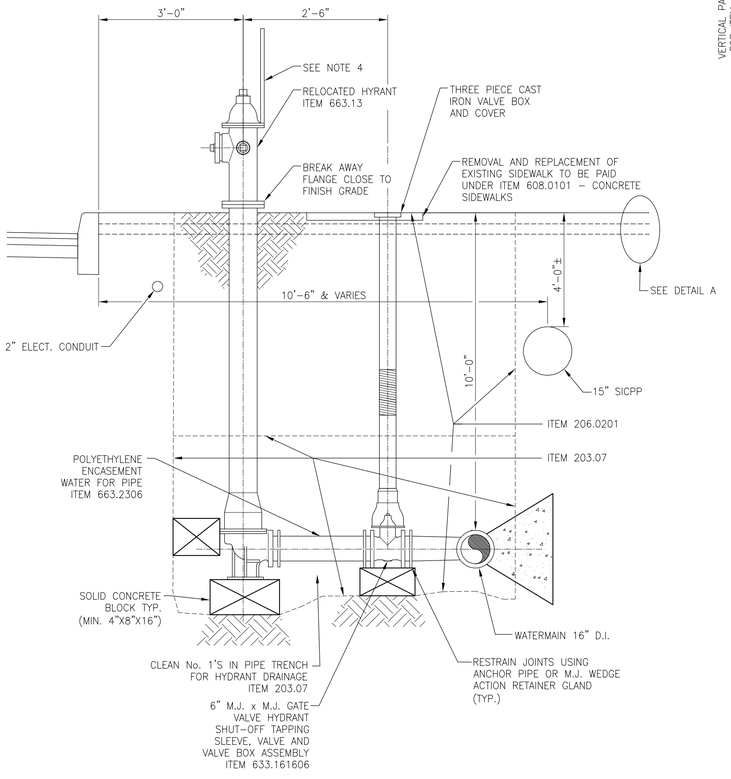
FIRE HYDRANT AND WATER SERVICE SPECIAL NOTES

1A. THE EXISTING FIRE HYDRANT AT STATION D X+XX, 15' LT, IS TO BE RELOCATED AS SHOWN ON THE PLANS. THE EXISTING GATE VALVE SHALL BE CLOSED AND THE VALVE BOX RISER COVER SHALL BE SET TO FINAL GRADE AS PER PLANS. THE ERIE COUNTY WATER AUTHORITY SHALL BE NOTIFIED A MINIMUM OF 5 CALENDAR DAYS AND HAVE A REPRESENTATIVE ON SIGHT.

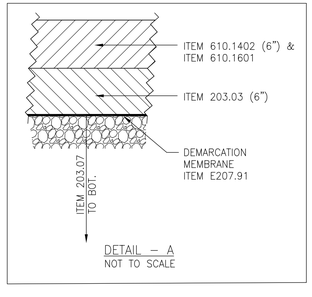
2A. THE CONTRACTOR SHALL NOTIFY THE OPERATIONS MANAGER FOR WELDED TUBE AND TRS PACKAGING FACILITY A MINIMUM OF SEVEN (7) CALENDAR DAYS OF ANY WATERLINE SHUT DOWN OR DISRUPTION TO SERVICE. THE CONTRACTOR SHALL COORDINATE WITH THE OPERATIONS MANAGER TO MINIMIZE DISRUPTIONS TO THEIR OPERATIONS. NO ADDITIONAL COMPENSATION OR PAYMENT WILL BE MADE TO THE CONTRACTOR FOR AFTER NORMAL BUSINESS HOURS OR WEEKENDS WORK.

3A. COST OF CAPPING THE EXISTING 6" ORIFACE ON THE 16 x 16 x 6 HYDRANT D.I. TEE WITH MECHANICAL BOLTED CAP SHALL BE INCLUDED IN THE HYDRANT RELOCATION ITEM 663.13.

4A. COST OF NUMBER 1 DRAINAGE STONE TO BE PAID UNDER ITEM 203.07.



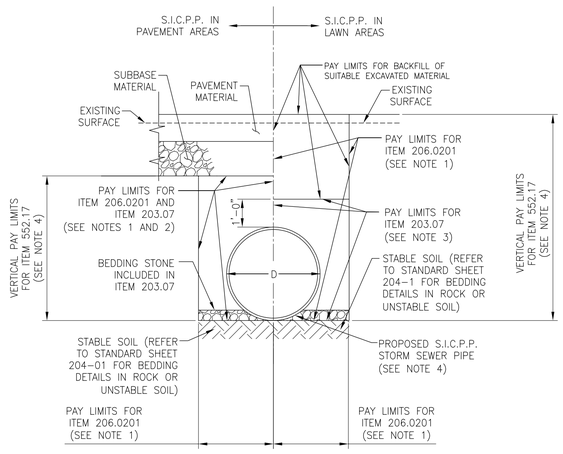
TYPICAL RELOCATED HYDRANT INSTALLATION DETAIL
NOT TO SCALE



DETAIL – A
NOT TO SCALE

NOTES:

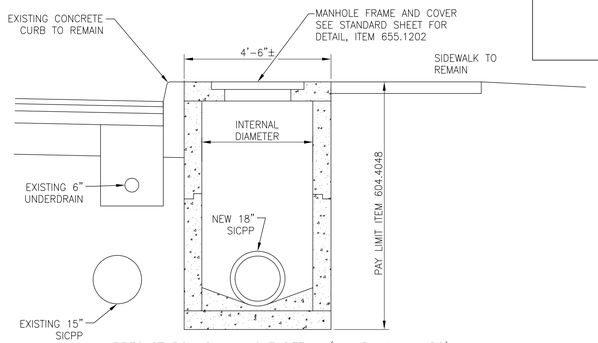
1. CENTERLINE OF THE LOWEST NOZZLE TO FINISH GRADE SHALL BE A MIN. OF 15" & MAX. OF 18".
2. HYDRANT RISER SHALL BE INSTALLED PLUMB.
3. VALVE BOX NOT SHALL NOT BE PLACED IN PAVEMENT.
4. RELOCATE HYDRANT MARKER (IF PRESENT), FOR WATERLINE REPLACEMENT PROJECTS ONLY.



S.I.C.P.P. STORM SEWER PIPE – TRENCH DETAIL
NOT TO SCALE

NOTES:

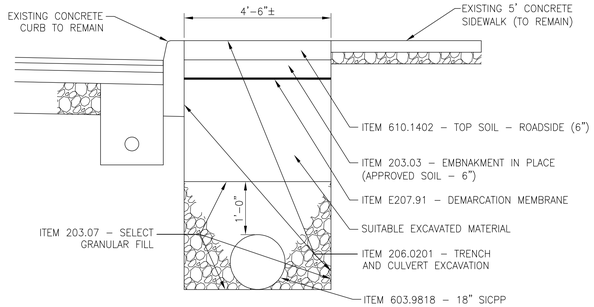
1. THE TRENCH WIDTH PAYMENT LINES FOR ITEM 206.0201 SHALL BE IN ACCORDANCE WITH STANDARD SHEET SERIES 203 FOR THE DESIGNED PIPE SIZE AND TYPE. THE PIPE SIZE AND TYPE INSTALLED IS DESIGNATED WITHIN THE DRAINAGE TABLES ON THE CONTRACT DRAWINGS.
2. FOR PIPE INSTALLATION UNDER THE ROADWAY PAVEMENT, THE UPPER PAY LIMIT FOR BACKFILL AND EXCAVATION (ITEM 203.07 AND ITEM 206.0101), RESPECTIVELY IS TO THE BOTTOM OF THE PLACED SUBBASE IN ACCORDANCE WITH THE TYPICAL SECTIONS SHOWN ON THE CONTRACT DRAWINGS.
3. FOR PIPE INSTALLATION NOT UNDER ROADWAY PAVEMENT. THE UPPER PAY LIMIT FOR BACKFILL (ITEM 203.07) SHALL BE 1'–0" ABOVE THE PIPE CROWN. THE REMAINDER SHALL BE SUITABLE EXCAVATED MATERIAL.
4. ITEM 552.17 IS TO BE USED WHEN EXCAVATION FROM THE VERTICAL PAY LIMIT EXCEEDS 5'–0".



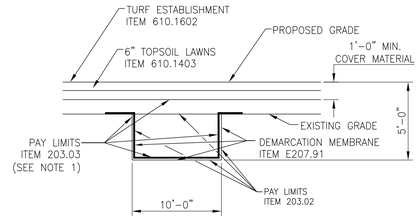
PRECAST ROUND MANHOLE DETAIL (MH–B1 & MH–B2)
NOT TO SCALE

NOTES:

1. DRAINAGE STRUCTURE DETAILS SHALL MEET NYSDOT REQUIREMENTS UNLESS OTHERWISE NOTED.



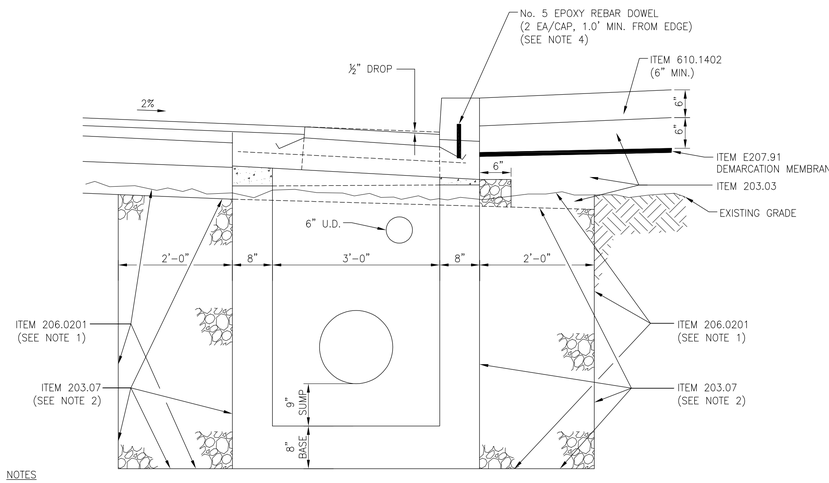
TRENCH DETAIL (MH–B1 & MH–B2)
NOT TO SCALE



UTILITY TRENCH DETAIL
NOT TO SCALE

NOTES:

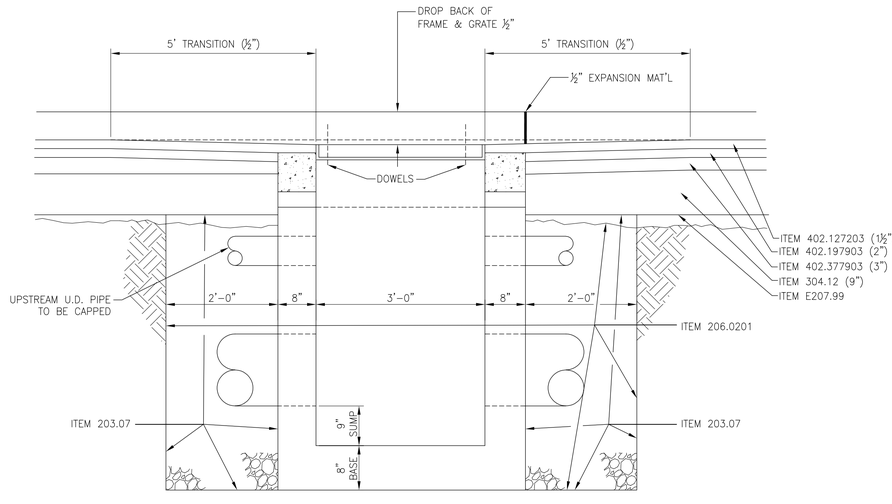
1. CLEAN BACKFILL MATERIAL MUST BE APPROVED BY NYSDEC.
2. SEE PLAN SHEETS FOR LOCATION.



SIDE VIEW

NOTES

1. EXCAVATION FOR DRAINAGE STRUCTURES TO BE PAID UNDER ITEM 206.0201. THE UPPER PAY LIMIT FROM EITHER THE ORIGINAL GROUND SURFACE LESS OVER BURDEN REMOVED UNDER ITEM 203.02 OR THE NEW TOP OF SUBGRADE, WHICH EVER IS AT THE LOWEST ELEVATION.
2. BACKFILL OF DRAINAGE STRUCTURES IS ITEM 203.07 – SELECT GRANULAR STONE. THE UPPER PAYMENT LINE WILL BE TO NEW TOP OF ROADWAY SUBGRADE. THE AREA BEHIND THE CURB FROM PROJECTION OF ROADWAY SUBGRADE TO DEMARCATION MATERIAL WILL BE PAID UNDER ITEM 203.03 REGARDLESS IF SELECT GRANULAR IS USED.
3. SLAG OR RECYCLED CONCRETE MATERIAL IS NOT PERMITTED IN THIS PROJECT.
4. CONTRACTOR HAS OPTION TO DRILL & GROUT EPOXY COATED REBAR IN FIELD OR HAVE IT PRECAST INTO A PRE–CAST TOP.



FRONT VIEW

ITEM 604.300103 – DRAINAGE STRUCTURE (TYPE A)
NOT TO SCALE

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RENAISSANCE COMMERCE PARK - PUBLIC ROAD B

MISCELLANEOUS DETAILS

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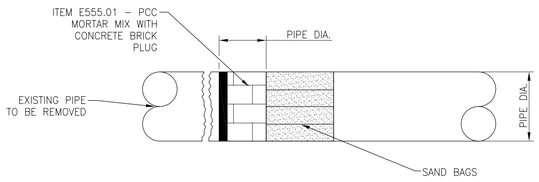
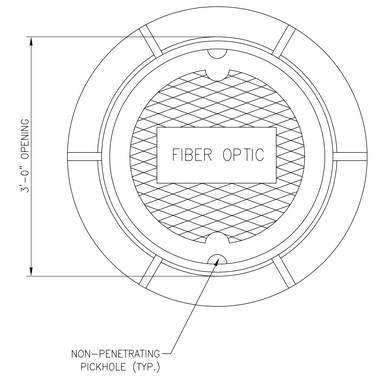


PLUGGING ABANDON PIPE DETAIL
NOT TO SCALE

NOTE

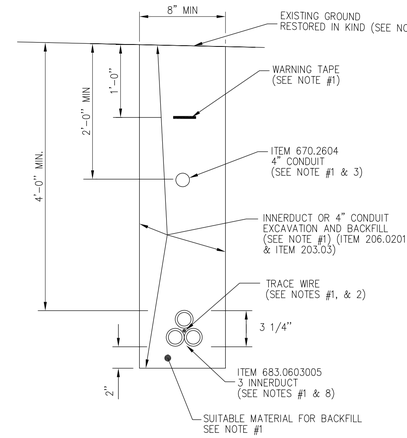
1. PLUG EXISTING PIPE WITH SAND BAGS. FILL REMAINING PORTION OF PIPE WITH CONCRETE BRICK AND TYPE "S" MORTAR. COST OF SAND BAGS, CUTTING OF PIPE, BRICKS, MORTAR AND ANY OTHER MATERIAL OR LABOR TO PLUG THE PIPE TO THE SATISFACTION OF THE E.I.C. IS IINCLUDED IN ITEM E555.01.



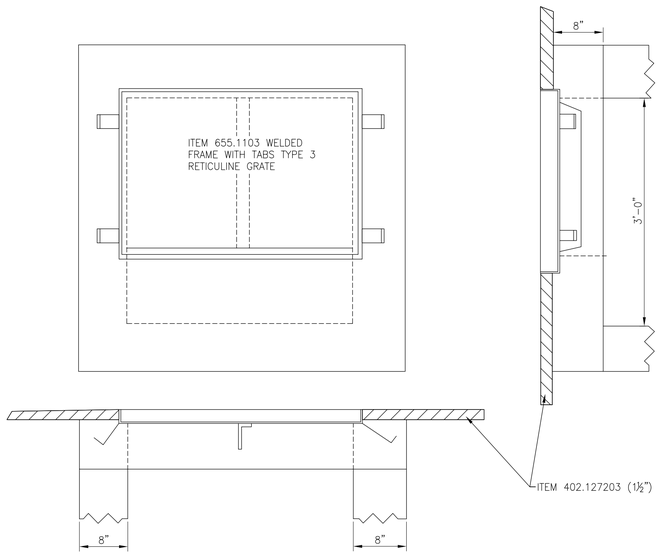
COMMUNICATIONS PULLBOX COVER
NOT TO SCALE

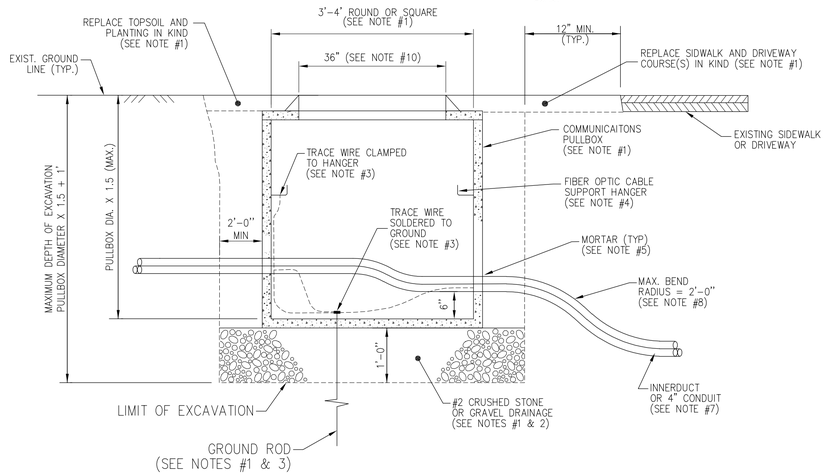
COMMUNICATIONS PULLBOX NOTES:

1. COMMUNICATIONS PULLBOXES SHALL BE INSTALLED ACCORDING TO THE DETAILS ON THIS PAGE AND THE CONTRACT SPECIFICATION FOR COMMUNICATIONS PULLBOXES IN THE LOCATIONS AND OF THE SIZE SHOWN ON THE CONTRACT PLANS. THE CONTRACTOR HAS THE OPTION OF INSTALLING ADDITIONAL PULLBOXES FOR EASE OF CABLE INSTALLATION. HOWEVER, NO ADDITIONAL PAYMENT SHALL BE MADE FOR ANY SUCH INSTALLATION UNLESS THE CONTRACTOR IS DIRECTED BY THE ENGINEER TO INSTALL ADDITIONAL COMMUNICATIONS PULLBOXES. ALL LOCATIONS AND QUANTITIES SHOWN ON THE PLANS AND TABLES ARE THEORETICAL AND MAY CHANGE DUE TO FIELD CONDITIONS, OR METHOD OF WORK. NO ADDITIONAL PAYMENT SHALL BE MADE FOR ANY SUCH CHANGE REQUIRED TO INSTALL PULLBOXES BETWEEN THE EQUIPMENT LOCATIONS SHOWN ON THE CONTRACT PLANS.
2. THE CONTRACTOR SHALL FILL AND COMPACT ONE FOOT OF CRUSHED #2 STONE OR GRAVEL OVER THE ENTIRE BOTTOM OF THE PULLBOX EXCAVATION IN ACCORDANCE WITH SECTION 203-3 AND ANY ANCILLARY SECTIONS OF THE NYSDOT STANDARD SPECIFICATIONS.
3. A GROUND ROD SHALL BE INSTALLED THROUGH THE BOTTOM OF EACH PULLBOX AND EMBEDDED IN EARTH IN ACCORDANCE WITH THE LATEST NEC PUBLICATION. SECTIONAL GROUND RODS WITH COUPLINGS SHALL BE USED TO INCREASE GROUND ROD LENGTH. ALL TRACE WIRE INSTALLED WITH THE INNERDUCT SHALL BE BONDED TO THE GROUND ROD AND TO ONE OF THE CABLE SUPPORT HANGERS IN EACH PULLBOX IN A FASHION WHICH ALLOWS FOR EASY CONNECTION OF TRACE EQUIPMENT.
4. CABLE HANGERS SHALL BE INSTALLED AT A MAXIMUM SPACING OF ONE FOOT MEASURE ALONG THE PULLBOX WALL.
5. ALL HOLES IN THE PULLBOX SHALL BE MORTARED WITH HYDRAULIC CEMENT OR APPROVED EQUAL, INCLUDING THE OPENING FOR THE GROUND ROD.
6. PULLBOX EXTENSIONS MAY BE ADDED AT THE BOTTOM OF THE PULLBOX TO INCREASE PULLBOX DEPTH AS REQUIRED.
7. ALL INNERDUCT AND 4" CONDUIT SHALL BE INSTALLED INTO NEW PULLBOXES ACCORDING TO THE DETAILS ON THIS PAGE AND THE CONTRACT SPECIFICATION FOR 1-1/2" INNERDUCT, AND 4" CONDUIT.
8. THE MINIMUM CONDUIT DEPTH SHALL BE REDUCED IN ORDER TO FACILITATE A SMOOTH TRANSITION FOR CONDUIT ENTRY INTO PULLBOXES WHERE REQUIRED A.O.B.E.
9. INNERDUCT SHALL BE INSTALLED CONTINUOUS WITH AN ADDITIONAL 4-FEET OF INNER DUCT LEFT IN THE PULLBOX. ALL CONDUITS SHALL HAVE WATERTIGHT CAPS ON ENDS.
10. ALL COMMUNICATIONS PULLBOX FRAMES AND COVERS SHALL BE FABRICATED BY A NYSDOT APPROVED MANUFACTURER FOR 36" AND 48" PULLBOXES AND SHALL BE CAST TO WITHSTAND A HS20-44 WHEEL LOAD.



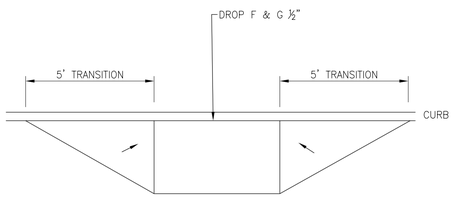
INNERDUCT AND 4" CONDUIT INSTALLATION
NOT TO SCALE



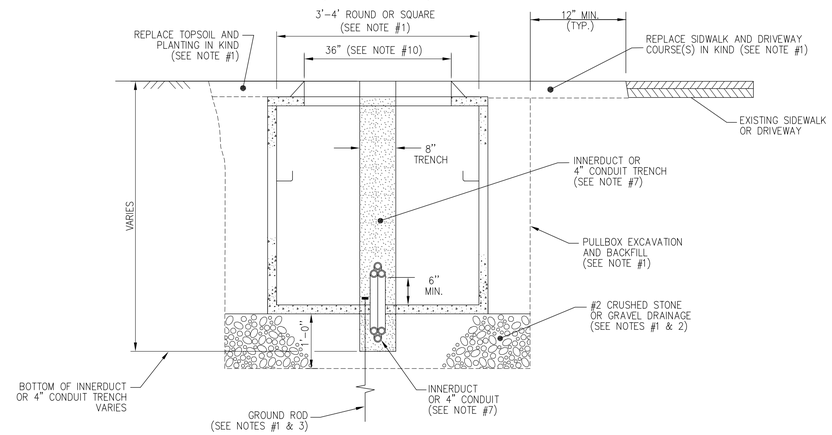


FRONT VIEW OF COMMUNICATIONS PULLBOX
NOT TO SCALE
(ITEM E680.51960011)

INNERDUCT PATH MARKER
NOT TO SCALE
(INCLUDED IN ITEM 683.0603005)



PAVEMENT TRANSITION AT DRAINAGE STRUCTURES
NOT TO SCALE

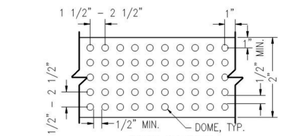


SIDE VIEW OF COMMUNICATIONS PULLBOX
NOT TO SCALE
(ITEM E680.51960011)

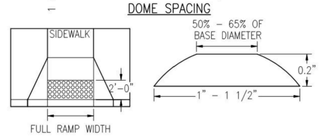
INNERDUCT AND 4" CONDUIT NOTES:

1. ALL INNERDUCT AND 4" CONDUIT, SHALL BE INSTALLED ACCORDING TO THE DTAILS ON THIS PAGE AND CONTRACT SPECIFICATIONS FOR 1-1/2" INNERDUCT AND 4" CONDUIT, BETWEEN THE EXISTING PULLBOXES AND EQUIPMENT CABINETS SHOWN ON THE CONTRACT PLANS. ALL LOCATIONS AND QUANTITIES SHOWN ON THE PLANS ARE THEORETICAL AND MAY CHANGE DUE TO FIELD CONDITIONS, OR METHOD OF WORK, NO ADDITIONAL PAYMENT SHALL BE MADE FOR ANY SUCH CHANGE REQUIRED TO COMPLETE INSTALLATION OF INNERDUCT OR 4" CONDUIT AS SPECIFIED AND DETAILED BETWEEN THE LOCATIONS SHOWN.
2. A TRACE WIRE SHALL BE BUNDLED WITH, BUT OUTSIDE THE INNERDUCT OVER THE LENGTH OF THE INNERDUCT AND EXTENDED INTO EACH PULLBOX THE INNERDUCT ENTERS. TRACE WIRE IS NOT REQUIRED FOR 4" CONDUIT INSTALLATION.
3. 4" CONDUIT SHALL NOT REPLACE ANY SECTION OF INNERDUCT SHOWN ON THE CONTRACT PLANS.
4. THE CONTRACTOR SHALL SAW CUT THE ENTIRE DEPTH OF ALL HARD SURFACES PRIOR TO EXCAVATION. LONGITUDINAL SAW CUTS IN SIDEWALK ARE NOT PERMITTED EXCEPT AS DIRECTED BY THE ENGINEER.
5. TRANSVERSE OPEN PAVEMENT CUTS ARE NOT PERMITTED IN THE ROADWAY SECTION.
6. CONCRETE SHALL NOT BE POURED IN DIRECT CONTACT WITH ANY INNERDUCT OR TRACE WIRE.
7. EACH BANK OF 3 INNERDUCT SHALL CONTAIN THE FOLLOWING COLORS; YELLOW, RED OR WHITE.

COLOR: BLACK (PER NYSDOT)

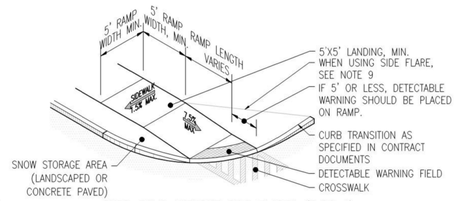


DOME SPACING



DETECTABLE WARNING AT CURB RAMP

DOME SECTION



CURB RAMP WITHOUT SIDE FLARES (TYPE 1)

NOTES:

1. THE DETECTABLE WARNING DETAILS PROVIDED ARE NOT DRAWN TO SCALE, THE QUANTITY OF DOMES DEPICTED ON THE DETECTABLE WARNING FIELD (THE DOMES AND THE ENTIRE 2' LEVEL SURFACE) IS FOR ILLUSTRATION ONLY.
2. LOCATION OF DETECTABLE WARNINGS. DETECTABLE WARNINGS SHALL BE LOCATED SO THAT THE EDGE OF THE WARNING FIELD NEAREST TO THE ROADWAY OR STREET SURFACE IS 6" TO 9" (1' WHERE TRANSVERSABLE CURB IS USED) FROM THE EDGE OF THE ROADWAY/STREET, OR FROM THE FACE OF THE DROPPED CURB, WHERE A DROPPED CURB CONTINUES ACROSS THE BOTTOM OF THE SIDEWALK CURB RAMP OR FLUSH SURFACE.
3. DOME ALIGNMENT. DOMES SHALL BE ALIGNED ON A SQUARE GRID IN THE PREDOMINANT DIRECTION OF TRAVEL.
4. PAYMENT LINES ARE THE 2' DIMENSION SHOWN IN THE DETAILS EXTENDING THE FULL WIDTH OF THE CURB RAMP AND/OR APPLICABLE SURFACES. LANDINGS SHALL HAVE A MINIMUM CLEAR DIMENSION OF A 5' BY 5' SQUARE.
5. LANDINGS MAY OVERLAP WITH ADJACENT LANDINGS OR A SINGLE LANDING MAY SERVE MULTIPLE CURB RAMPS OR PARALLEL OR PARALLEL/PERPENDICULAR RAMPS. LANDINGS MAY OVERLAP WITH THE CLEAR GROUND SPACE REQUIRED AT PEDESTRIAN SIGNAL PUCH BUTTONS.
6. CROSS SLOPES: THE MAXIMUM CROSS SLOPE OF CURB RAMPS SHALL BE 2 PERCENT. THE MAXIMUM CROSS SLOPE AT LANDINGS IS 2 PERCENT IN ANY DIRECTION. SURFACES SHALL GENERALLY LIE IN CONTINUOUS PLANES WITH A MINIMUM OF SURFACE WARP.
7. THE RUNNING GRADE OF CURB RAMPS SHOULD BE AS FLAT AS PRACTICABLE. THE MAXIMUM RUNNING GRADE OF ANY PORTION OF ANY CURB RAMP SHALL BE 1:14 (75%). CURB RAMPS ARE NOT REQUIRED TO BE LONGER THAN 15'.
8. THE SURFACE OF ALL CURB RAMPS SHALL BE STABLE, FIRM AND SLIP RESISTANT. A COARSE BROOM FINISH RUNNING PERPENDICULAR TO THE SLOPE IS RECOMMENDED ON CONCRETE RAMP SURFACES, EXCLUSIVE OF THE DETECTABLE WARNING FIELDS.
9. CURB RAMPS LOCATED WHERE PEDESTRIANS MAY WALK ACROSS THE CURB RAMP SHALL HAVE FLARED SIDES. THE LENGTH OF THE FLARES SHALL BE AT LEAST TEN (10) THE TIMES THE CURB HEIGHT, MEASURED ALONG THE CURB LINE. WHEN INFEASIBLE OR IMPRACTICABLE TO PROVIDE A LANDING THAT IS AT LEAST 4' WIDE (MEASURED FROM THE TOP OF THE RAMP TO THE BACK OF THE SIDEWALK), THE LENGTH OF THE FLARES SHALL BE TWELVE (12) TIMES THE CURB HEIGHT MEASURED ALONG THE CURB LINE.
10. COORDINATE ALL TRAFFIC CONTROL DEVICES, UTILITY LOCATIONS, SIGNS, STREET FURNITURE AND DRAINAGE TO ENSURE A CONTINUOUS PEDESTRIAN ACCESS ROUTE AT ALL CURB RAMP LOCATIONS. GUIDANCE FOR CROSSWALK MARKINGS AND TRAFFIC CONTROL DEVICES IS PROVIDED IN THE MUTCD. DRAINAGE GRATES AND UTILITY ACCESS COVERS ARE NOT ALLOWED IN RAMP WALKING SURFACES OR LANDINGS.
11. AT MARKED CROSSINGS, THE FULL WIDTH OF THE RAMP SHALL BE WHOLLY CONTAINED WITHIN THE MARKINGS. THE SIDES OF THE RAMPS (THE FLARES) NEED NOT BE WITHIN THE WIDTH OF THE MARKINGS.
12. RAMP TRANSITIONS BETWEEN WALKS, GUTTERS, OR STREETS SHALL BE FLUSH AND FREE OF ABRUPT VERTICAL CHANGES (1/4" MAX.).

ACCESSIBLE RAMPS WITH DETECTABLE WARNING STRIP DETAILS

N.T.S.

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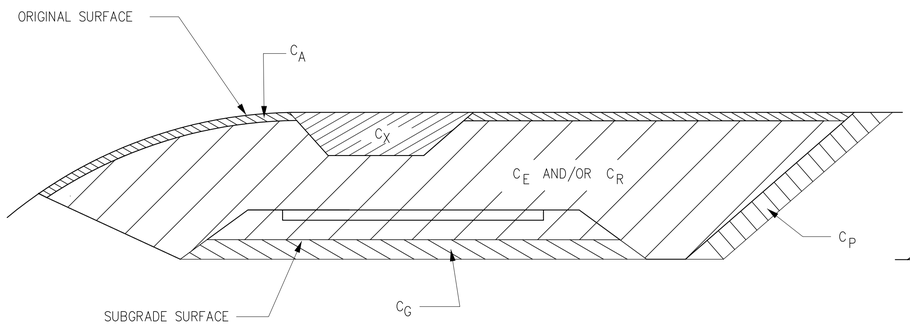
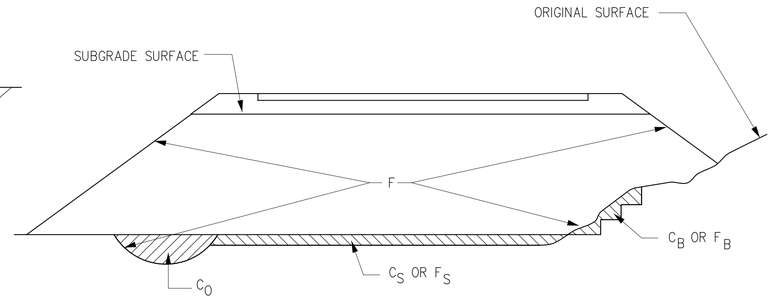
ECIDA/ILDE 95 Perry Street, Suite 403 Buffalo, New York 14203	Sheet No.
	Date Feb. 2022
RENAISSANCE COMMERCE PARK - PUBLIC ROAD B	Scale As Noted
MISCELLANEOUS DETAILS	DWG. MSD-2

SUMMARY OF EARTHWORK (ITEMS 203.02 AND 203.03 ONLY)					
SOURCE	EXCAVATION			ITEM 203.02	ITEM 203.03
	T_E	C_R	T_U	C_T	F_T
B 0+00 TO B 15+00	90	0	3363	3453	7186
66' DIA. TURNAROUND	0	0	64	64	7186
HYDRANT RELOCATION	0	0	0	0	10
TOTALS	90	0	3427	3517	7196

SUMMARY OF TRENCH AND CULVERT EXCAVATION (ITEM 206.0201 ONLY)			
SOURCE	EXCAVATION		ITEM 206.0201
	ROCK	NON-ROCK	
DRAINAGE STRUCTURES		177	177
15" SICPP		882	882
UNDERDRAIN		226	226
INNERDUCT TRENCH		146	146
HYDRANT RELOCATION		52	52
TOTALS		1483	1483



CUT SECTION



FILL SECTION

DEFINITIONS:

C_B – EXCAVATION FOR REQUIRED BENCHING, (BOTH LONGITUDINAL AND TRANSVERSE).

C_G – EXCAVATION FOR SUBGRADE IMPROVEMENT.

C_P – EXCAVATION FROM CUT SLOPE NECESSARY TO PLACE SLOPE PROTECTION.

C_E – PORTION OF CUT ASSUMED TO BE EARTH SUITABLE FOR EMBANKMENT CONSTRUCTION, EXCLUDING C_G AND C_P.

T_E – $(C_B + C_G + C_P + C_E)$ TOTAL EARTH EXCAVATION ASSUMED SUITABLE FOR EMBANKMENT CONSTRUCTION.

C_A – EXCAVATION OF TOPSOIL (UNSUITABLE MATERIAL) IN CUT.

C_S – EXCAVATION OF TOPSOIL (UNSUITABLE MATERIAL) UNDER EMBANKMENT.

C_X – EXCAVATION OF UNSUITABLE MATERIAL IN CUT: SWAMP OR DUMP

C_O – EXCAVATION OF UNSUITABLE MATERIAL BENEATH EMBANKMENT: SWAMP OR DUMP

T_U – $(C_A + C_S + C_X + C_O)$ TOTAL EXCAVATION ASSUMED UNSUITABLE FOR EMBANKMENT CONSTRUCTION.

C_R – PORTION OF CUT ASSUMED TO BE ROCK, INCLUDING C_G IF APPLICABLE.

C_T – $(T_E + T_U + C_R)$ TOTAL EXCAVATION.

DEFINITIONS:

F_B – FILL REQUIRED TO REPLACE BENCHES.

F_S – FILL REQUIRED TO REPLACE TOPSOIL REMOVED BENEATH EMBANKMENTS.

F – FILL REQUIRED TO COMPLETE EMBANKMENT TO SUBGRADE SURFACE AND SIDE-SLOPES AFTER FOUNDATION IS PREPARED.

F_T – $(F_B + F_S + F)$ TOTAL FILL REQUIRED.

T_A – $(T_E \times F_E + C_R \times F_R)$ THE VOLUME WHICH THE SUITABLE EXCAVATED MATERIAL COULD OCCUPY IN EMBANKMENT.

F_E – SHRINKAGE FACTOR FOR EARTH

F_R – SWELL FACTOR FOR ROCK

NOTES:

THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT THESE TABLES ARE ESTIMATED, AND ARE PROVIDED FOR THE PURPOSE OF PREPARING AN ESTIMATE. THEY ARE NOT TO BE CONSTRUED AS BEING EXACT. THEY ARE INTENDED TO QUANTIFY AND QUALIFY THE NATURE OF THE WORK TO BE PERFORMED. SIGNIFICANT DIFFERENCE FROM THIS REPRESENTATION, WHEN ENCOUNTERED DURING THE ACTUAL WORK, WILL BE HANDLED ACCORDING TO THE SPECIFICATIONS GOVERNING THIS PROJECT.

203.02 UNCLASSIFIED EXCAVATION AND DISPOSAL

203.03 EMBANKMENT IN PLACE

206.0201 TRENCH AND CULVERT EXCAVATION

SUBDIVISION NO.	LOCATION STATION TO STATION	SUITABLE EXCAVATION				ROCK	UNSUITABLE MATERIAL					TOTAL EXCAVATION	EMBANKMENT			
		C_B	C_G	C_E	T_E	C_R	C_A	C_S	C_X	C_O	T_U	C_T	F_B	F_S	F	F_T
	B 0+00 – B 15+00	0	0	90	90	0	3363	0	0	0	3363	3453	0	3197	3989	7186
	66' DIA. TURNAROUND	0	0	0	0	0	64	0	0	0	64	64	0	0	0	0
	HYDRANT RELOCATION	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10

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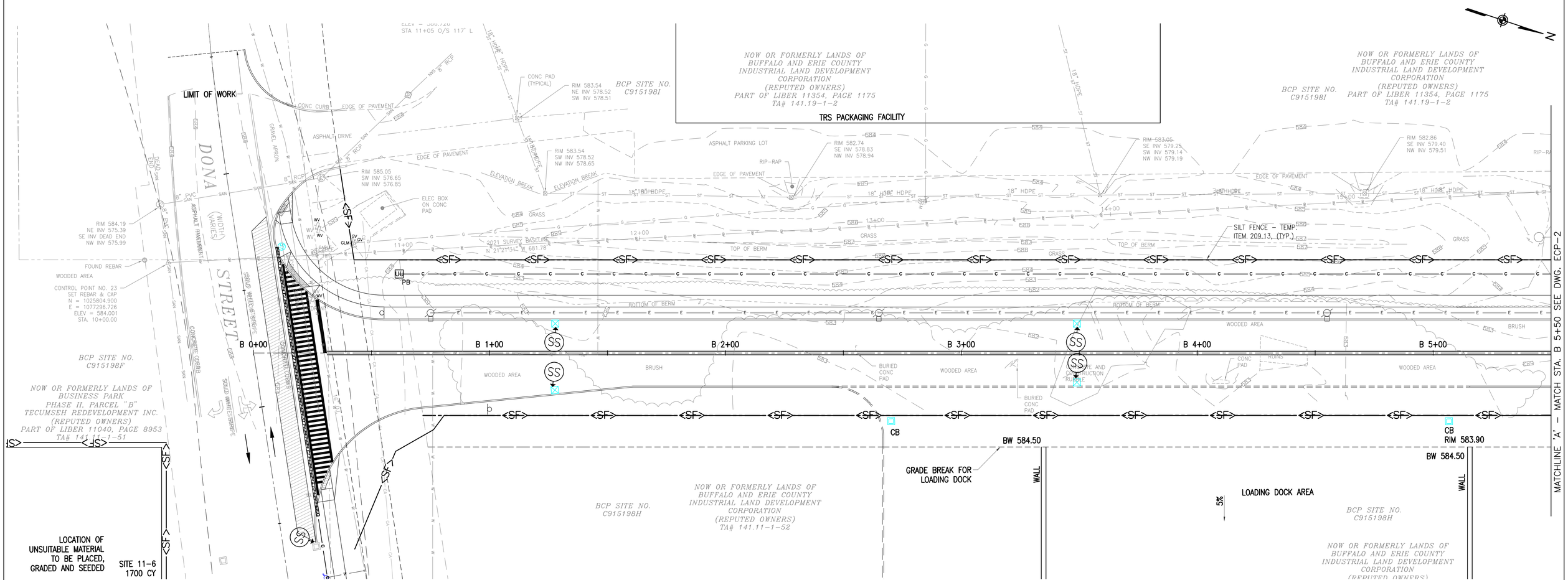
RENAISSANCE COMMERCE PARK - PUBLIC ROAD B

EARTHWORK SUMMARY SHEET

Sheet No.
Date Feb. 2022
Scale As Noted
DWG. ESS-2

RENAISSANCE COMMERCE PARK -
PUBLIC ROAD B
Sheet Number 22 OF 31



EROSION CONTROL NOTES:

1. THE CONTRACTOR SHALL APPLY WATER AS CONDITIONS WARRANT TO CONTROL WIND BORN EROSION. THIS MEASURE APPLIES TO HAUL ROADS, CUT AND FILL OPERATIONS, SUBBASE AND ANY OTHER EXPOSED SURFACES. COST FOR APPLYING WATER SHALL BE INCLUDED IN THE VARIOUS CONTRACT ITEMS.
2. ANY GRADED AREAS NOT SUBJECT TO FURTHER DISTURBANCE OR CONSTRUCTION TRAFFIC SHALL WITHIN 7 DAYS OF FINAL GRADING, RECEIVE THE APPLICATION OF THE PROPOSED VEGETATIVE COVER.
3. IN ACCORDANCE WITH THE INTERIM EXCAVATION PLAN, EXCAVATED MATERIAL SHALL REMAIN AT THE AREA DESIGNATED FOR DISPOSAL, SITE 11-6. THE CONTRACTOR SHALL COORDINATE THE FINAL LOCATION OF THE SPOIL MATERIAL WITH THE OWNER (ECIDA) AND EIC.
4. THE FINAL GRADING OF THE SPOILED MATERIAL SHALL NOT BE GREATER THAN 1-½ FEET IN HEIGHT OVER ORIGINAL GROUND. THE EDGES SHALL BE FEATHER TO BLEND WITH THE EXISTING TERRAIN. HYDRO-SEEDING OF VEGETATED COVER SHALL BE DONE WITHIN 1 CALENDAR DAY OF FINAL GRADING.

LEGEND:

<SF> SILT FENCE (TEMPORARY) - 209.13

SS INLET PROTECTION - ITEM 209.1702

NOTES:

1. REFER TO DWG. NO. ECD-01 FOR EROSION CONTROL DETAILS.
2. ALL AREAS DISTURBED DURING CONSTRUCTION SHOULD BE RESTORED AS SOON AS PRACTICAL. DISTURBED AREAS SHALL BE TEMPORARILY SEEDED AND MULCHED IF NEEDED DURING CONSTRUCTION TO PREVENT EROSION.

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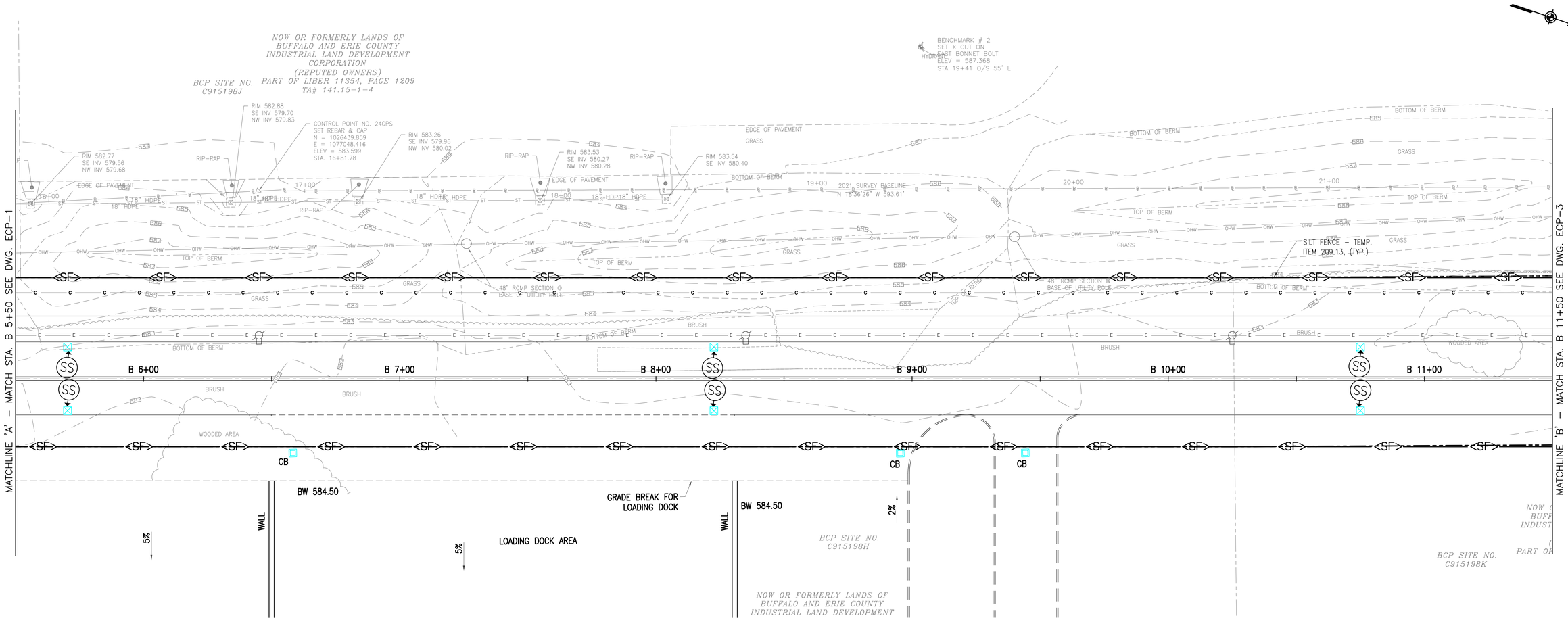
RENAISSANCE COMMERCE PARK - PUBLIC ROAD B

EROSION AND SEDIMENT CONTROL PLAN

Sheet No.
Date Feb. 2022
Scale As Noted
DWG. ECP-1

RENAISSANCE COMMERCE PARK -
PUBLIC ROAD B
Sheet Number 23 OF 31



LEGEND:

<SF> SILT FENCE (TEMPORARY) – 209.13

SS INLET PROTECTION – ITEM 209.1702

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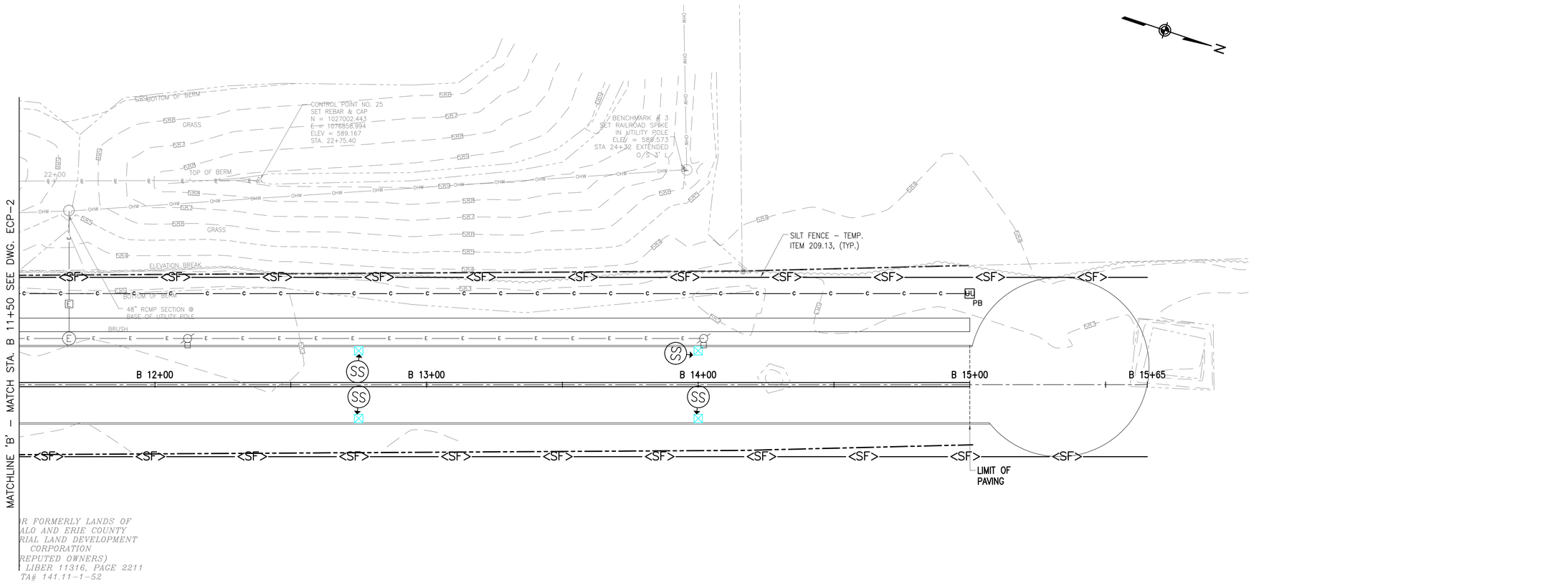
RENAISSANCE COMMERCE PARK - PUBLIC ROAD B

EROSION AND SEDIMENT CONTROL PLAN

Sheet No.	
Date	Feb. 2022
Scale	As Noted
DWG.	ECP-2

RENAISSANCE COMMERCE PARK -
PUBLIC ROAD B
Sheet Number 24 OF 31



0 20 40 60 FT
HORIZONTAL SCALE
1" = 20' SCALE BAR

LEGEND:

<SF> SILT FENCE (TEMPORARY) – 209.13

SS INLET PROTECTION – ITEM 209.1702

NOTES:

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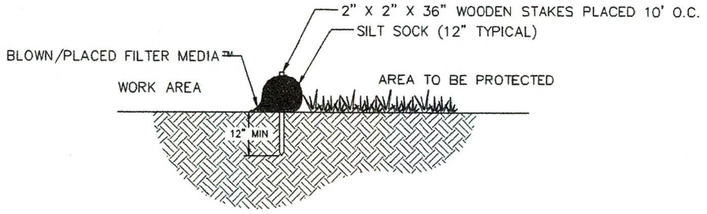
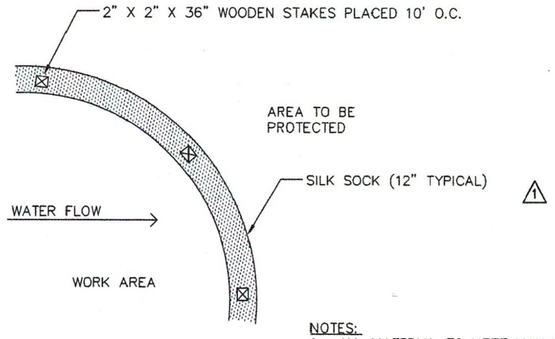
	Date Feb. 2022
RENAISSANCE COMMERCE PARK - PUBLIC ROAD B	Scale As Noted
EROSION AND SEDIMENT CONTROL PLAN	DWG. ECP-3

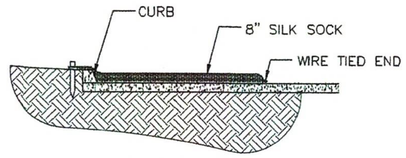


SECTION

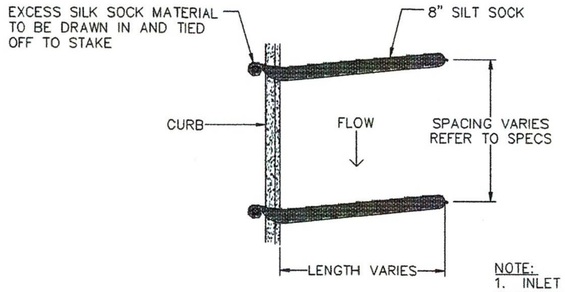


PLAN

NOTES:
1. ALL MATERIAL TO MEET MANUFACTURER SPECIFICATIONS.
2. FILTER MEDIA FILL TO MEET APPLICATION REQUIREMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.



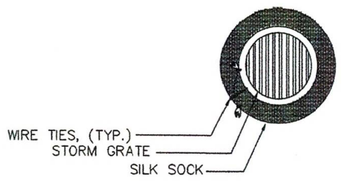
SECTION



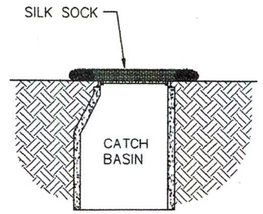
PLAN

NOTE:
1. INLET PROTECTION SHOULD NOT BE PLACED DIRECTLY UPSLOPE FROM DRAIN INLETS

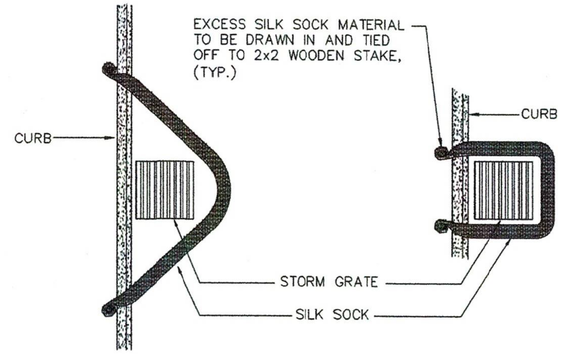
SILT SOCK INLET PROTECTION
CURB CONTAINMENT
NTS



DRAIN INLET PLAN

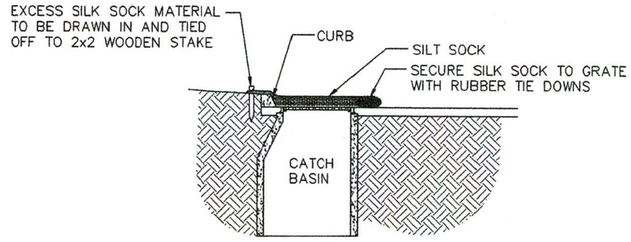


DRAIN INLET SECTION



CURBSIDE OPTION "A" PLAN

CURBSIDE OPTION "B" PLAN

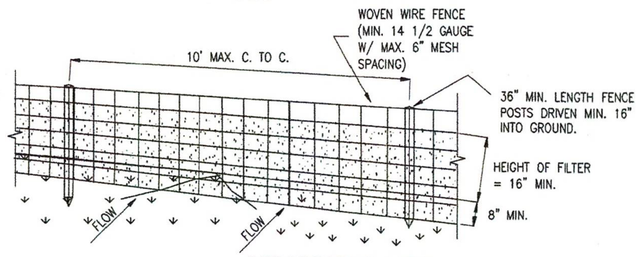


CURBSIDE SECTION

NOTES:
1. ALL MATERIAL TO MEET MANUFACTURER SPECIFICATIONS.
. FILTER MEDIA FILL TO MEET APPLICATION REQUIREMENTS.
. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.
. SILT SOCK SIZES SHALL BE APPROPRIATE FOR FIELD CONDITIONS OR A.O.B.E.

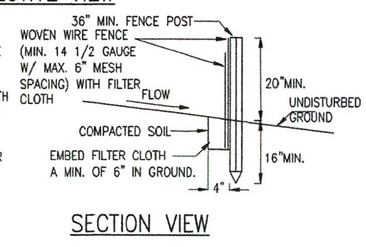
SILT SOCK INLET PROTECTION
NTS

SILT SOCK SEDIMENT CONTROL
NTS



PERSPECTIVE VIEW

CONSTRUCTION SPECIFICATIONS
1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 12 1/2 GAUGE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
4. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.



SECTION VIEW

SILT FENCE INSTALLATION DETAIL
N.T.S.

CONSTRUCTION SPECIFICATIONS:
1. STONE SIZE - USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH - TEN (10) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
5. FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE. FILTER WILL NOT BE REQUIRED ON A SINGLE FAMILY RESIDENCE LOT.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARDS CONSTRUCTION ENTRANCE SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIOINAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED,WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WASHING - WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

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Sheet No.	
Date	Feb. 2022
Scale	As Noted
DWG.	ECD-1

RENAISSANCE COMMERCE PARK - PUBLIC ROAD B

EROSION & SEDIMENT CONTROL DETAILS

RENAISSANCE COMMERCE PARK - PUBLIC ROAD B
Sheet Number 26 OF 31

N

LIMIT OF WORK

BCP SITE NO. C915198G

DONA STREET

D 9+00

D 10+00

D 11+00

SAN

RIM = 584.19
NE INV = 575.39
SE INV = DEAD END
NW INV = 575.99

8" PVC

HANDICAPPED RAMP

ASPHALT PAVEMENT (WIDTH) (VARIES)

FOUND REBAR 0.10NE 0.13SE

CONTROL POINT NO. 23
SET REBAR & CAP
N = 1025804.900
E = 1077296.726
ELEV = 584.001
STA = 10+00.00

MILL EXISTING ASPHALT 1-1/2" TO CENTER OF WESTBOUND DONA STREET TRAVEL WAY AND PAVE WITH ROAD B TOP COURSE PLACEMENT OR A.O.B.E. ITEM 490.30

STA. D 9+77 = STA. B 0+00

SOLID YELLOW STRIPE

SOLID WHITE STRIPE

CONCRETE CURB

B 0+00

R=50'

8" CONC CURB EDGE OF PAVEMENT

8" RCP

18" SICPP

ASPHALT DRIVE

5' RCP

GRASS

12.3'X7.5' ELECTRICAL BOX ON CONC PAD

ITEM E680.51960011
FURNISH AND INSTALL CONCRETE FIBER OPTIC PULLBOX

MH-B1
STA. D 9+34±, 18.56' LT.=
STA. B 0+11±, 45.13' LT.
TG=584.75
INV. NE=578.54 (IN)
INV. SW=578.54 (OUT)

DS-B2
STA. B 1+27.86, 14.00' LT.
TG=583.38
INV. N=578.68 (IN)
INV. E=578.68 (IN)
INV. W=578.68 (OUT)

ITEM 663.31
RELOCATE EXISTING HYDRANT

15" SICPP

14.0'

23.0'

WOODED AREA

BRUSH

DS-B1
STA. B 1+27.86, 17.29' RT.
TG=583.31
INV. W=578.73 (OUT)

ITEM 670.2003 - GALVANIZED STEEL CONDUIT, 2"

RELOCATE LIGHT POLE (LP-3)
ITEM 670.80
ITEM 670.82

ITEM 670.2602 - RIGID PLASTIC CONDUIT, 2"

RELOCATED FIRE HYDRANT WITH NEW TAPPING SLEEVE. ECWA SHALL BE NOTIFIED 7 DAYS PRIOR TO TAPPING EXISTING 16-INCH DUCTILE WATER MAIN.

RELOCATED LIGHT POLE (LP-3)
ITEM 678.90

66' WIDE WATERLINE EASEMENT TO WELDBRIDGE APARTMENTS LIBER 10300, PAGE 613

APPROX. LOCATION OF EASEMENT TO THE COUNTY OF ERIE

CA

W

NOW OR FORMERLY LANDS OF BUSINESS PARK PHASE II, PARCEL "B" TECUMSEH REDEVELOPMENT INC. (REPUTED OWNER) PART OF LIBER 11040, PAGE 8953 TA# 141.11-1-51

LOCATION OF UNSUITABLE MATERIAL TO BE PLACED, GRADED AND SEEDED

SITE 11-6
1700 CY
(SEE DWG. ECP-1)

BCP SITE NO. C915198F

BCP SITE NO. C915198H

NOW OR FORMERLY LANDS OF BUFFALO AND ERIE COUNTY INDUSTRIAL LAND DEVELOPMENT CORPORATION (REPUTED OWNER) TA# 141.11-1-52

TRS PACKAGING FACILITY

BCP SITE NO. C915198I

NOW OR FORMERLY LANDS OF BUFFALO AND ERIE COUNTY INDUSTRIAL LAND DEVELOPMENT CORPORATION(REPUTED OWNER) PART OF LIBER 11354, PAGE 1175 TA# 141.19-1-2

CONC PAD (TYPICAL)
RIM = 583.54
NE INV = 578.52
SW INV = 578.51

RIM = 583.21
SW INV = 578.52
NW INV = 578.65

RIM = 582.74
SE INV = 578.83
NW INV = 578.94

RIM = 583.05
SE INV = 579.25
SW INV = 579.14
NW INV = 579.19

RIM = 582.86
SE INV = 579.40
NW INV = 579.51

ASPHALT PARKING LOT

RIP-RAP

EDGE OF PAVEMENT

ELEVATION BREAK

18" HDPE

ST

G

2021 SURVEY BASELINE
N 21°21'31" W 681.79'

TOP OF BERM

BOTTOM OF BERM

5' SIDEWALK

BRUSH

DS-B4
STA. B 3+49.00, 14.00' LT.
TG=583.63
INV. N=579.01 (IN)
INV. E=579.01 (IN)
INV. S=579.01 (OUT)

(ITEM 201.06)
CONCRETE AND CONSTRUCTION RUBBLE

WOODED AREA

RUINS

15" SICPP

B 1+00

B 2+00

B 3+00

B 4+00

B 5+00

BURIED CONCRETE PAD

CONC PAD

ITEM 202.19
SUBSTRUCTURE REMOVAL

DS-B3
STA. B 3+49.00, 14.00' RT.
TG=583.63
INV. INV. W=579.05 (OUT)

CB

CB
RIM 583.90

BW 584.50

GRADE BREAK FOR LOADING DOCK

WALL

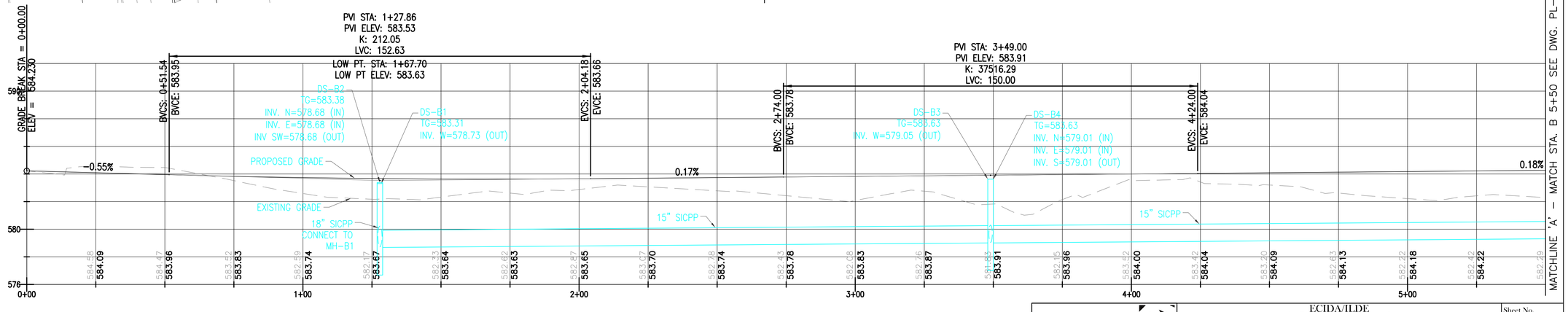
LOADING DOCK AREA

5%

PROPOSED UNILAND DISTRIBUTION FACILITY

MATCHLINE "A" – MATCH STA. B 5+50 SEE DWG. PL-2

MATCHLINE "A" – MATCH STA. B 5+50 SEE DWG. PL-2



VERTICAL SCALE
1" = 4' SCALE BAR
0 4 8 12 FT

HORIZONTAL SCALE
1" = 20' SCALE BAR
0 20 40 60 FT

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Buffalo, New York 14203

RENAISSANCE COMMERCE PARK - PUBLIC ROAD B

GENERAL PLAN AND PROFILE

Sheet No.	
Date	Feb. 2022
Scale	As Noted
DWG.	PL-1

RENAISSANCE COMMERCE PARK - PUBLIC ROAD B
Sheet Number 27 OF 31

N

N = 1026459.859
E = 1077048.416
ELEV = 583.599
STA = 16+81.78

RIM = 582.77
SE INV = 579.56
NW INV = 579.68

RIM = 582.88
SE INV = 579.70
NW INV = 579.83

RIM = 583.26
SE INV = 579.94
NW INV = 580.02

RIM = 583.53
SE INV = 580.27
NW INV = 580.26

RIM = 583.54
SE INV = 580.40

2021 SURVEY BASELINE
N 18°36'26" W 593.61'

PP #2303
STA. B 9+40±
55'± LT.

MATCHLINE 'A' – MATCH STA. B 5+50 SEE DWG. PL-1

MATCHLINE 'B' – MATCH STA. B 11+50 SEE DWG. PL-3

DS-B6
STA. B 5+70.28, 14.00' LT.
TG=583.97
INV. N=579.34 (IN)
INV. E=579.34 (IN)
INV. S=579.34 (OUT)

DS-B8
STA. B 8+22.64, 14.00' LT.
TG=584.34
INV. N=579.72 (IN)
INV. E=579.72 (IN)
INV. S=579.72 (OUT)

DS-B10
STA. B 10+75.00, 14.00' LT.
TG=584.72
INV. N=580.10 (IN)
INV. E=580.10 (IN)
INV. S=580.10 (OUT)

BROKEN CONC. (ITEM 201.06)

CONCRETE PAD (PARTIALLY BURIED) 5' SIDEWALK

B 6+00 | B 7+00 | B 8+00 | B 9+00 | B 10+00 | B 11+00

15" SICPP

14.0'

CONC. FOUNDATION (ITEM 202.19)

CONC. FOUNDATION (ITEM 202.19)

BROKEN CONC. W/ REBAR, (ITEM 201.06)

CONC. RUBBLE & BRICK, (ITEM 201.06)

CONC. RUBBLE & BRICK, (ITEM 201.06)

WOOD TIES AND RUBBLE, (ITEM 201.06)

DS-B5
STA. B 5+70.28, 14.00' RT.
TG=583.97
INV. W=579.39 (OUT)

DS-B7
STA. B 8+22.64, 14.00' RT.
TG=584.34
INV. W=579.76 (OUT)

DS-B9
STA. B 10+75.00, 14.00' RT.
TG=584.72
INV. W = 580.14 (OUT)

CB

BW 584.50

WALL

5%

2%

GRADE BREAK FOR LOADING DOCK

LOADING DOCK AREA

BCP SITE NO. C915198H

BCP SITE NO. C915198K

NOW OR FORMERLY LANDS OF BUFFALO AND ERIE COUNTY INDUSTRIAL LAND DEVELOPMENT CORPORATION (REPUTED OWNER) TA# 141.11-1-52

PROPOSED UNILAND DISTRIBUTION FACILITY

PVI STA: 7+40.92
PVI ELEV: 584.60
K: 3203.69
LVC: 150.00

BVCS: 6+65.92
BVCE: 584.47

EVCS: 8+15.92
EVCE: 584.70

PROPOSED GRADE

EXISTING GRADE

0.13%

584.26 | 582.47 | 584.31 | 582.24 | 584.35 | 582.47 | 584.40 | 582.67 | 584.44 | 581.99 | 584.48 | 581.86 | 584.53 | 582.11 | 584.57 | 582.67 | 584.60 | 583.22 | 584.64 | 583.18 | 584.68 | 583.80 | 584.71 | 583.30 | 584.74 | 583.41 | 584.77 | 583.48 | 584.81 | 583.33 | 584.84 | 583.09 | 584.87 | 582.87 | 584.90 | 582.84 | 584.93 | 582.71 | 584.97 | 583.39 | 585.00 | 582.07 | 585.03 | 582.19 | 585.06 | 582.43 | 585.10 | 582.16

6+00 | 7+00 | 8+00 | 9+00 | 10+00 | 11+00

0 20 40 60 FT
HORIZONTAL SCALE
1" = 20' SCALE BAR

0 4 8 12 FT
VERTICAL SCALE
1" = 4' SCALE BAR

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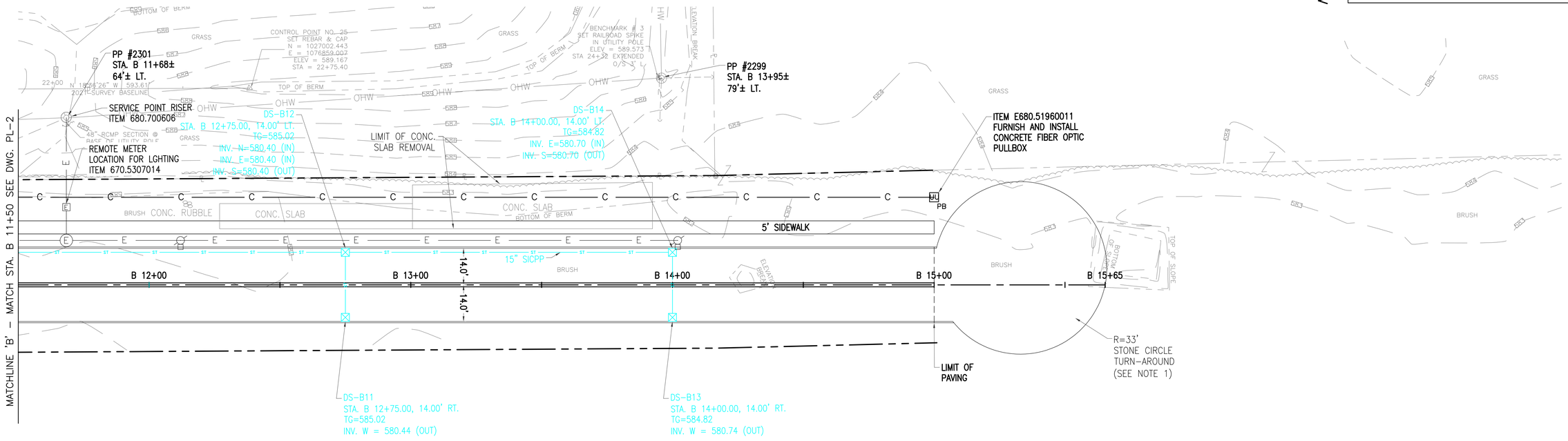
RENAISSANCE COMMERCE PARK - PUBLIC ROAD B

GENERAL PLAN AND PROFILE

Sheet No.	
Date	Feb. 2022
Scale	As Noted
DWG.	PL-2

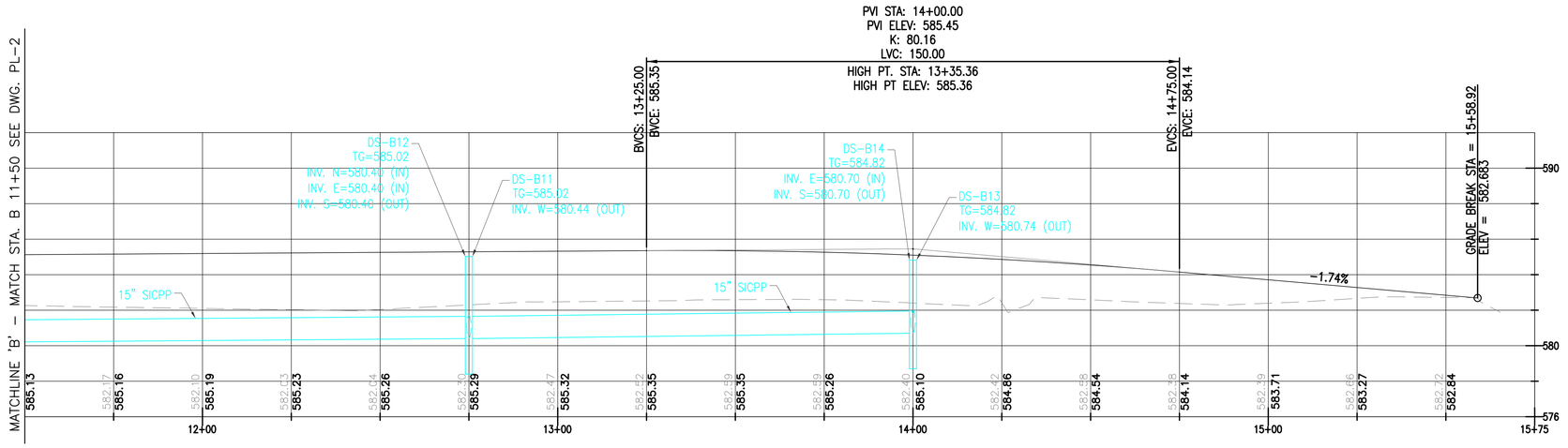
RENAISSANCE COMMERCE PARK -
PUBLIC ROAD B
Sheet Number 28 OF 31

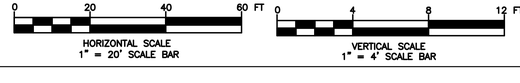


NOW OR FORMERLY LANDS OF
BUFFALO AND ERIE COUNTY
INDUSTRIAL LAND DEVELOPMENT
CORPORATION
(REPUTED OWNER)
LIBER 11316, PAGE 2211
TA# 141.11-1-52

BCP SITE NO.
C915198K

NOW OR FORMERLY LANDS OF
BUFFALO AND ERIE COUNTY
INDUSTRIAL LAND DEVELOPMENT
CORPORATION
(REPUTED OWNER)
LIBER 11316, PAGE 2211
TA# 141.11-1-52





NOTES:

1. ECIDA RESERVES THE RIGHT THE RIGHT TO MODIFY OR REMOVE CONSTRUCTION OF THE CIRCLE TURN-AROUND FROM THE PUBLIC ROAD B PROJECT. PAYMENT FOR NO WORK WILL BE FOR ONLY THE WORK DONE. THE CONTRACTOR WILL NOT BE ENTITLED TO ANY ADDITIONAL COMPENSATION SHOULD THE STONE CIRCLE BE DELETED FROM THE CONTRACT.

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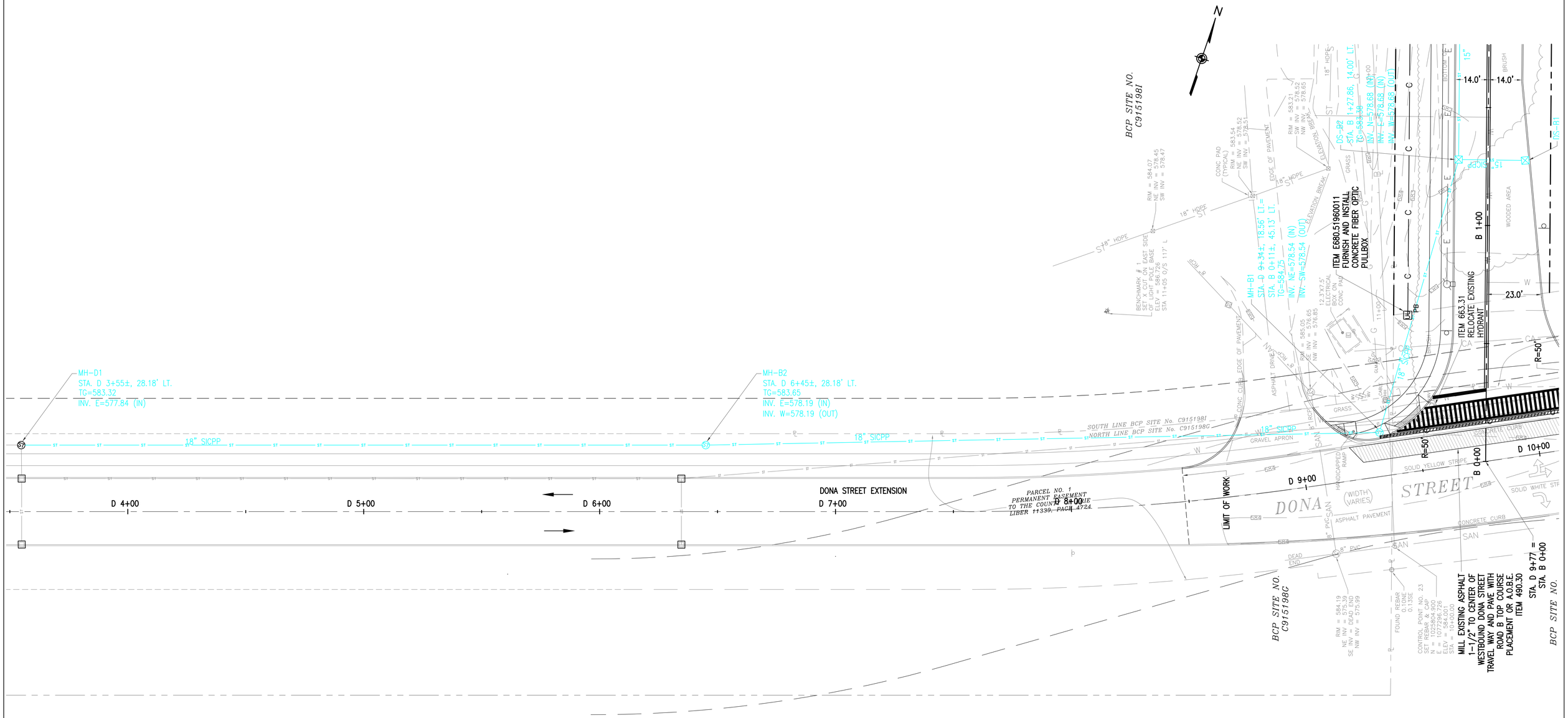
RENAISSANCE COMMERCE PARK - PUBLIC ROAD B

GENERAL PLAN AND PROFILE

Sheet No.
Date Feb. 2022
Scale As Noted
DWG. PL-3

RENAISSANCE COMMERCE PARK -
PUBLIC ROAD B
Sheet Number 29 OF 31



0 20 40 60 FT
HORIZONTAL SCALE
1" = 20' SCALE BAR

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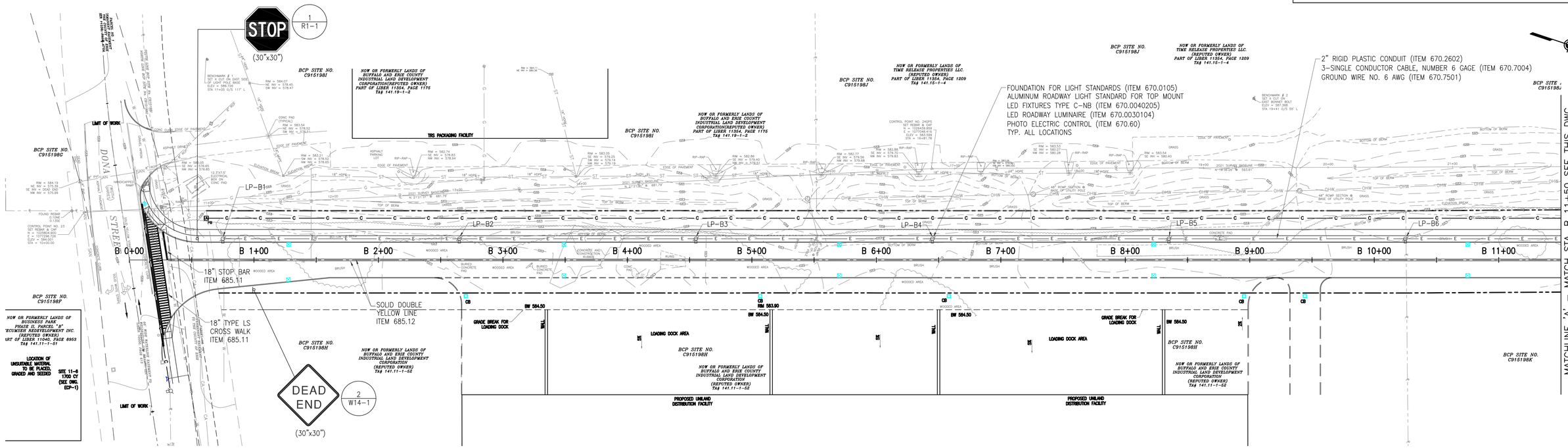
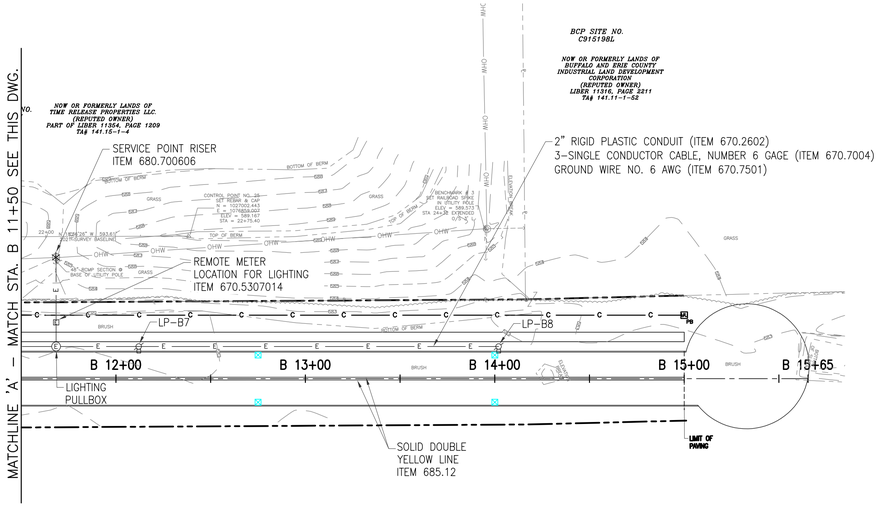
Sheet No.	
Date	Feb. 2022
Scale	As Noted
DWG.	PL-4

RENAISSANCE COMMERCE PARK - PUBLIC ROAD B

GENERAL PLAN AND PROFILE

RENAISSANCE COMMERCE PARK - PUBLIC ROAD B
Sheet Number 30 OF 31





NOTES:

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW IN THE FIELD ALL EXISTING CONDITIONS WHICH MAY BE INVOLVED WITH THE INSTALLATION OF UNDERGROUND STREET LIGHTING FACILITIES.
2. ALL UNDERGROUND CABLE WILL BE INSTALLED IN 2" SCHEDULE 40 PVC CONDUIT RUNNING CONTINUOUS BETWEEN ALL STRUCTURES (PULLBOXES, FOUNDATIONS, ETC.): SPECIFIC CONDUIT ITEM AS NOTED ON PLANS.
3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SAFEGUARD ALL NEW STREET LIGHTING INSTALLATIONS, POLES, CABLE, ETC., FOR THE DURATION OF THE PROJECT. IF ANY DAMAGE OCCURS TO THE NEW CABLE INSTALLATION: SPLICING IS NOT PERMITTED. THE CABLE RUN MUST BE REPLACED IN ITS ENTIRETY FROM, "POINT OF CONNECTION TO POINT OF CONNECTION". THERE WILL BE NO ADDITIONAL COST TO THE CITY OF LACKAWANNA FOR THE ABOVE CONDITIONS.
4. STREET LIGHTING MUST BE MAINTAINED AND ENERGIZED, WHICH WILL INCLUDE THE EXISTING SYSTEM AND/OR THE NEW LIGHTING INSTALLATIONS, FOR THE DURATION OF THE PROJECT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAKE ALL REQUIRED REPAIRS ON THE EXISTING EXISTING AND/OR NEW STREET LIGHTING FACILITIES, AT NO COST TO THE OWNER, FROM THE TIME CONSTRUCTION BEGINS UNTIL FINAL ACCEPTANCE OF THE NEW STREET LIGHTING SYSTEM.
5. THE CONTRACTOR IS REQUIRED TO PROTECT EXISTING UTILITIES AND SHALL REPAIR AND REPLACE ANY DAMAGE CAUSED BY INSTALLATION OF THEIR OWN WORK AT THEIR EXPENSE.
6. NO LIGHT POLE CONDUIT OR WIRING SHALL BE PLACED WITHIN 2 FT. OF ANY GUIDERAIL OR GROUND MOUNTED SIGNS.
7. THE CONTRACTOR SHALL INSTALL CODED WIRING ONLY AND PROVIDE PROPER FUSE KITS, COORDINATED WITH RESPECTIVE WIRE SIZE.
8. ALL NEW LIGHT POLES SHALL BE NUMBERED BY THE CONTRACTOR AS LISTED IN THE LIGHTING PLANS OR AS ORDERED BY THE CITY OF LACKAWANNA.
9. RIGID GALVANIZED STEEL CONDUITS SHALL BE PLACED UNDER ALL ROADWAYS. ALL OTHER LIGHTING CONDUIT TO BE RIGID PLASTIC CONDUIT.
10. INSTALL ALL CONDUITS PER NEC 300.5, AND THE FOLLOWING:
    - A) ALL CONDUIT, REGARDLESS OF ITS LOCATION, SHALL BE PLACED A MINIMUM OF 24-INCHES BELOW FINAL GRADE IN NON-PAVEMENT AREAS AND 24-INCHES BELOW SUBGRADE IN PAVEMENT AREAS.
    - B) ALL BURIED CONDUIT SHALL HAVE A MAGNETIC TAPE PLACED 8 TO 12-INCHES ABOVE THE CONDUIT.
    - C) IN NON-PAVEMENT AREAS, AN APPROVED DEMARCATION MATERIAL SHALL BE INSTALLED/LOCATED 12-INCHES BELOW FINAL GRADE. ANY DISTURBANCE OR DAMAGE OF THE DEMARCATION MATERIAL SHALL BE REPLACED/REPAIRED TO THE SATISFACTION OF THE ENGINEER AND NYSDEC, AT NO ADDITIONAL COST TO THE COUNTY.
    - D) CONDUIT IN PAVEMENT AREAS SHALL BE INSTALLED PRIOR TO PLACEMENT OF THE SUBBASE REINFORCEMENT MATERIAL – LAYER 2 (ITEM E207.99).

LIGHTING TABLE

FEATURE	STATION	OFFSET (FT.)	SIDE
POWER POINT			
POLE #	B 11+68±	64±	LT.
CIRCUIT 2			
LP-B1	B 0+75	17	LT.
LP-B2	B 2+65	17	LT.
LP-B3	B 4+55	17	LT.
LP-B4	B 6+45	17	LT.
LP-B5	B 8+35	17	LT.
LP-B6	B 10+25	17	LT.
LP-B7	B 12+12	17	LT.
LP-B8	B 14+02	17	LT.

LEGEND:

PROPOSED LOCATION OF STREET LIGHTING POLE WITH POST TOP LUMINAIRE MOUNTED ON A CONCRETE FLUSH FOUNDATION

—— E —— PROPOSED NEW 2" SCHEDULE 40 PVC CONDUIT WITH PROPOSED NEW 3#6, 1#6G TYPE RHW-2 UNDERGROUND ELECTRICAL CABLE

* PROPOSED NEW ELECTRICAL SERVICE RISER ASSEMBLY ON EXISTING WOOD UTILITY POLE

0 40 80 120 FT
HORIZONTAL SCALE
1" = 40' SCALE BAR

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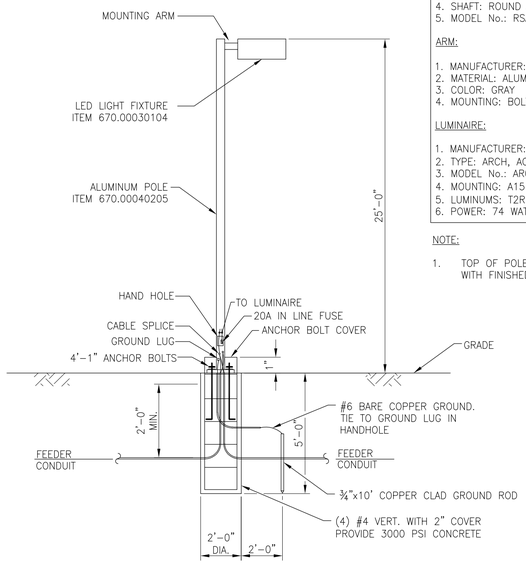
Sheet No.	
Date	Feb. 2022
RENAISSANCE COMMERCE PARK - PUBLIC ROAD B	Scale As Noted
SIGNING, STRIPING AND LIGHTING PLAN	DWG. SSL-1



LIGHTING POLE FOUNDATION DETAIL
NOT TO SCALE
TO BE PAID UNDER ITEM 670.0105

SPECIFICATIONS

LIGHTING POLE:

1. MANUFACTURER: HAPCO 25'
2. MATERIAL: ALUMINUM STAIN ALUMINUM
3. COLOR: GRAY
4. SHAFT: ROUND AND TAPERED
5. MODEL No.: RSA25D8-4-01

ARM:

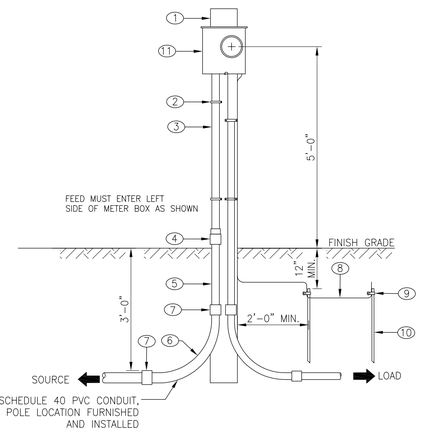
1. MANUFACTURER: STREETWORKS (NO OPTIONS)
2. MATERIAL: ALUMINUM
3. COLOR: GRAY
4. MOUNTING: BOLT

LUMINAIRE:

1. MANUFACTURER: STREETWORKS
2. TYPE: ARCH, ACHEON SMALL/LED
3. MODEL No.: ARCH-AF24-70-D-U-T2R-4-AP
4. MOUNTING: A15 (STRAIGHT ARM 15")
5. LUMINUMS: T2R 4000/5000K 8,222 A F24-70
6. POWER: 74 WATTS

NOTE:

1. TOP OF POLE FOUNDATION TO BE SET FLUSH WITH FINISHED GROUND.



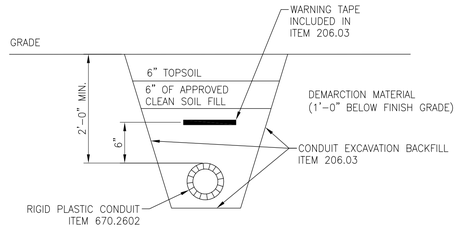
MATERIALS LIST

1. SUPPORT POST 8" x 8" (PRESERVATIVE TREATED) MIN. SQUARE OR 8" DIA. MIN. ROUND
2. PIPE STRAPS
3. 2" CONDUIT SCHEDULE 80 PVC CONDUIT
4. 2" SLIP JOINT FROST HEAVE PROTECTION INSTALLED ABOVE GRADE
5. 2" CONDUIT SCHEDULE 40 PVC BELOW FINISH GRADE
6. 2" 90° SWEEP GALVANIZED STEEL
7. 2" ADAPTER
8. GROUND WIRE NO. 6 COPPER (MIN. SIZE)
9. GROUND ROD CONNECTORS
10. GROUND RODS (2) MIN. 8'-0" x ⅝" DIAMETER COPPER CLAD
11. METER SOCKET TO BE SECURELY ATTACHED TO POST BY CONSUMER

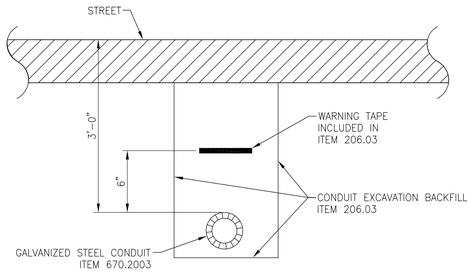
REMOTE METER LOCATION
NOT TO SCALE
TO BE PAID UNDER ITEM 670.53070104

NOTES:

1. ALL CONDUIT AND ACCESSORIES MUST MEET ELECTRICAL GRADE SPECIFICATIONS.
2. ALL SERVICE ENTRANCE WIRING MUST BE COMPLETE AND ALL NECESSARY EXCAVATION AND CONDUIT READY PRIOR TO THE TIME OF INSTALLATION OF THE UNDERGROUND SERVICE LATERAL CONDUCTORS BY THE UTILITY COMPANY.
3. ALL WIRING AND MATERIALS MUST CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AND TO APPLICABLE LOCAL CODES WHERE CONFLICTS EXISTS, THE MORE STRINGENT CODE WILL APPLY.



CONDUIT IN DIRECT BURIAL
NOT TO SCALE



CONDUIT UNDER STREET
DRIVEWAY AND PARKING LOTS
DIRECT BURIAL CONDUIT DETAIL
NOT TO SCALE

NOTES:

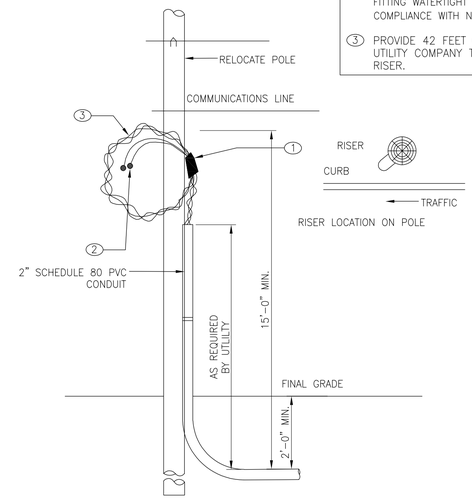
1. ALL CONDUIT RUNS SHALL DRAIN TO THE PULLBOX.
2. CONDUIT TO BE INLINE WITH LIGHT FOUNDATIONS AND A MINIMUM OF 3'-0" FROM CURB.

SPECIAL NOTE: RELOCATION OF EXISTING DONA STREET EXTENSION LIGHT POLE

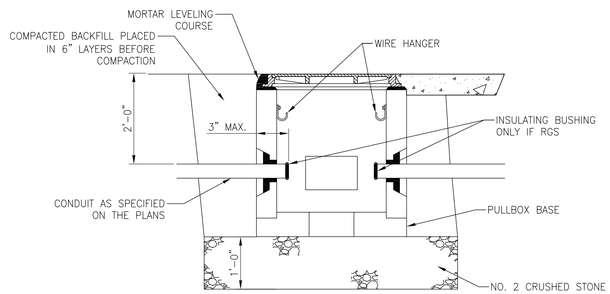
1. THE EXISTING DONA STREET LIGHT POLE LP-3 AT STA. D10+46, 16.75' LT, IS TO BE RELOCATED APPROXIMATELY 44'± EAST TO STA. D10+90, 16.75' LT.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DE-ENERGIZING THE STREET LIGHT BEFORE COMMENCING PULLING ANY WIRES FROM LP-3.
3. THE CONTRACTOR SHALL NOTIFY THE ENGINEER-IN-CHARGE, THE CITY OF LACKAWANNA PUBLIC WORKS COMMISSIONER, (ANTHONY DESANTIS) AND ERIE COUNTY DPW, (Ms. GINA WILKOLASKI) ONE WEEK PRIOR TO DE-ENERGIZING THE SYSTEM.
4. THE CONTRACTOR, AFTER DE-ENERGIZING SHALL DETACH AND PULL BACK THE EXISTING 3-SINGLE CONDUCTOR CABLE, NUMBER 6 GAGE AND GROUND WIRE, NO. 6 AWG. TO LP-4.
5. THE CONTRACTOR SHALL PLACE A GALVANIZED STEEL CONDUIT UNDER ROAD B EXTENDING 4-FEET BEYOND THE CURB LINE OF ROAD B.
6. NEW 3-SINGLE CONDUCTOR CABLE SHALL BE PLACED FROM LP-4 TO RELOCATED LP-3, AND THE CONDUCTOR CABLE AND GROUND WIRE FROM LP-2 TO THE RELOCATED LP-3 SHALL BE MODIFIED TO FIT THE NEW LOCATION. THE COST OF MODIFYING THE EXISTING CONDUCTOR , CONDUIT AND GROUND WIRE SHALL BE INCLUDED IN ITEM 670.90 – RELOCATE LAMPPOST ASSEMBLY.
7. CARE SHALL BE TAKEN IN REMOVING THE EXISTING RE-CAST CONCRETE LAMPPOST FOUNDATION. AFTER ALL WIRES HAVE BEEN REMOVED FROM THE EXISTING CONDUIT, THE CONTRACTOR SHALL CUT THE 2" CONDUIT, AND REMOVE THE FOUNDATION IN ITS ENTIRETY. THE ENDS OF THE EXISTING CONDUIT SHALL BE CAPPED WITH AN APPROVED WATER TIGHT CAP AND THE EXCAVATION SHALL BE BACKFILLED WITH SELECT GRANULAR FILL MEETING THE SPECIFICATIONS FOR ITEM 203.07 TO SUBGRADE. THE COST OF BACKFILLING IS INCLUDED IN ITEM 670.82 – REMOVE AND DISPOSE LAMPPOST FOUNDATION.

NOTES:

1. CABLE IS TO BE ATTACHED TO THE POLE WELL ABOVE THE TOP OF THE RISER WITH A KELLUMS GRIP BASKET OR LENGTH OF LINE TIED IN A "ROLLING BEND KNOT" SO AS TO PROTECT THE CABLE FROM MECHANICAL BENDING DAMAGE.
2. ALL CABLE SHALL BE PROPERLY END CAPPED AT BOTH ENDS BY THE CONTRACTOR WITH APPROVED TIGHT FITTING WATERTIGHT SEALING CAPS OR IN STRICT COMPLIANCE WITH NEC §300.5(E).
3. PROVIDE 42 FEET OF CABLE PER PHASE FOR UTILITY COMPANY TO COMPLETE INSTALLATION OF RISER.



SERVICE POINT RISER
NOT TO SCALE
ITEM 680.700606



PULLBOX DETAIL
NOT TO SCALE

NOTES:

1. ALL ITEMS INCLUDING EXCAVATION AND BACKFILL AND CRUSHED STONE TO BE PAID UNDER PULLBOX ITEM 670.3001.
2. PULLBOXES SHALL HAVE A CAST FRAME AND COVER MEETING THE REQUIREMENTS OF SECTION 715-02. COVERS SHALL HAVE "LIGHTING" IN RAISED LETTERS.

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Sheet No.	
Date	Feb. 2022
RENAISSANCE COMMERCE PARK - PUBLIC ROAD B	Scale As Noted
LIGHTING DETAILS	DWG. LTD-1

Appendix 2

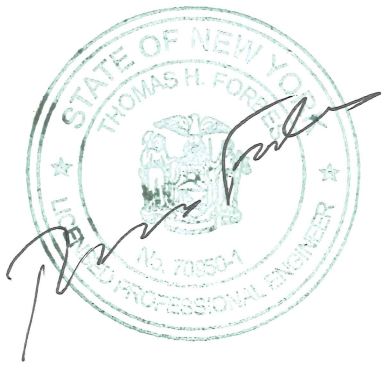
Site Management Plan (SMP)

Site Management Plan (SMP)

Brownfield Cleanup Program
Tecumseh Phase II Business Park
NYSDEC Site Nos. C915198 through C915198L
Lackawanna, New York

January 2014 0071-012-322

Prepared By:



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BROWNFIELD CLEANUP PROGRAM

SITE MANAGEMENT PLAN

TECUMSEH PHASE II BUSINESS PARK
NYSDEC SITE NUMBERS: C915198 through C915198L
LACKAWANNA, NEW YORK

January 2014 0071-012-322

Prepared by:

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Revisions to Final Approved Site Management Plan:

Revision #	Submitted Date	Summary of Revision	DEC Approval Date

SITE MANAGEMENT PLAN
TECUMSEH PHASE II BUSINESS PARK

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1.0 INTRODUCTION AND DESCRIPTION OF REMEDIAL PROGRAM

1.1 Introduction

This document is a required element of the remedial program for the New York State Brownfield Cleanup Program (BCP) Sites within and collectively comprising the property referred to as the "Tecumseh Phase II Business Park," located in City of Lackawanna, Erie County, New York (see Figures 1 through 3). These BCP Sites, listed below by name and New York State Department of Environmental Conservation (NYSDEC) Site Number, were remediated or are slated to undergo remediation in accordance with Brownfield Cleanup Agreement (BCA) Index No. B9-0696-05-06(B), which was executed on March 14, 2007 and amended on August 20, 2012:

Site Name:	NYSDEC Site Number:
Site II-1	C915198
Site II-2	C915198B
Site II-3	C915198C
Site II-4	C915198D
Site II-5	C915198E
Site II-6	C915198F
Site II-7	C915198G
Site II-8	C915198H
Site II-9	C915198I
Site II-10	C915198J
Site II-11	C915198K
Site II-12	C915198L

This SMP has been prepared in accordance with the requirements in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation, dated May 2010, and the guidelines provided by the NYSDEC. This SMP addresses the means for implementing the Institutional Controls (ICs) and Engineering Controls (ECs) that are required by the Environmental Easement(s) governing the above-listed BCP Sites.

1.1.1 Background

Tecumseh Redevelopment Inc. (Tecumseh) submitted an application to the NYSDEC dated May 20, 2005 requesting a BCA for the approximate 143-acre Phase II Business Park property. The NYSDEC deemed Tecumseh's application complete, and assigned the Phase II Business Park as Site Number C915198. Tecumseh subsequently entered into the BCA with the NYSDEC on May 14, 2007, which required the company to investigate and remediate contaminated media within the Phase II Business Park.

Upon substantial completion of the Remedial Investigation activities described later in this document, Tecumseh prepared a letter to the NYSDEC dated December 22, 2011 requesting division of the Phase II Business Park project area into 12 sub-parcels to stimulate sale and redevelopment of more manageable sized properties and promote "green remediation" by coordinating certain final remedial measures (i.e., cover placement) with associated sub-parcel build-out. The NYSDEC agreed to Tecumseh's request and, in August 2012, the original BCA for Site C915198 was amended to cover the smaller Site II-1, with separate BCAs issued and executed for the remaining 11 BCP Sites (i.e., Sites II-2 through II-12; C915198B through C915198L, respectively). It was further determined that individual Decision Documents, Remedial Action Work Plans (RAWPs), Final Engineering Reports (FERs), and Certificates of Completion (COCs) would be prepared for each of the 12 BCP Sites, with a common Site Management Plan (SMP) and Environmental Easement prepared to cover all of the BCP Sites within the Phase II Business Park[1].

1.1.2 Site Location and Description

The overall boundaries of the Controlled Property as well as the boundaries of the individual Sites contained therein are more fully described in the survey metes and bounds description (see Appendix A-1). The Controlled Property is identified as part of tax parcel number 141.11-1-50 on the Erie County Tax Map, and is comprised of an approximate 143-acre area bounded by the Phase I and IA Business Park sites to the north; South Buffalo Railroad Company to the south; Phase III Business Park and the South Return Water

[1] For clarity and in recognition of the intent of this SMP to address post-remedial requirements applicable to all of the sub-parcels within the Phase II Business Park, the term "Controlled Property" hereafter refers to the collective group of BCP Sites comprising the Phase II Business Park, with the term "Site" used to reference the individual BCP sub-parcels.

Trench (SRWT) to the west; and Route 5 to the east (see Figure 2). The Controlled Property is transected by Smokes Creek, which is specifically excluded from the BCP.

1.1.3 Purpose and Organization

After completion of the remedial work described in the Site-specific RAWPs, some contamination will remain in the subsurface, which is hereafter referred to as 'remaining contamination." This Site Management Plan (SMP) was prepared to manage remaining contamination on the Controlled Property until the Environmental Easement is extinguished in accordance with ECL Article 71, Title 36. All reports associated with the Controlled Property can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State.

Engineering Controls (ECs) have been incorporated into the remedy to control exposure to remaining contamination during the use of the Controlled Property to ensure protection of public health and the environment. The Environmental Easement (see Appendix A-2) granted to the NYSDEC, and recorded with the Erie County Clerk, will require compliance with this SMP and all ECs and ICs placed on the Controlled Property. The ICs place restrictions on use of the Controlled Property, and mandate operation, maintenance, monitoring, and reporting measures for all ECs and ICs. This SMP specifies the methods necessary to ensure compliance with all ECs and ICs required by the Environmental Easement for contamination that remains on the Controlled Property. This SMP has been approved by the NYSDEC, and compliance with this SMP is required by the grantor of the Environmental Easement and the grantor's successors and assigns. This SMP may only be revised with the approval of the NYSDEC.

This SMP provides a detailed description of all procedures required to manage remaining contamination on the Controlled Property after completion of the Remedial Action, including: (1) implementation and management of all Engineering and Institutional Controls; (2) media monitoring; (3) operation and maintenance of all treatment, collection, containment, or recovery systems; (4) performance of periodic inspections, certification of results, and submittal of Periodic Review Reports (PRRs); and (5) defining criteria for termination of any remaining treatment system operations.

To address these needs, this SMP includes three plans: (1) an Engineering and Institutional Control Plan for implementation and management of EC/ICs; (2) a Monitoring

Plan for implementation of required monitoring; (3) an Operation and Maintenance Plan for implementation of remedial collection, containment, treatment, and recovery systems (including, where appropriate, preparation of an Operation and Maintenance Manual for complex systems). To the extent these requirements are generic to the Controlled Property they are incorporated within the body of this SMP. Site-specific requirements (e.g., groundwater monitoring; operation and maintenance of ongoing active remediation systems, etc.) are incorporated in Appendix H for Sites where remedial work is substantially complete. Remaining Site-specific requirements will be added or modified by addenda as the remedial work progresses on those Sites.

This SMP also includes a description of Periodic Review Reports for the periodic submittal of data, information, recommendations, and certifications to the NYSDEC.

It is important to note that:

- This SMP details the site-specific implementation procedures that are required by the Environmental Easement. Failure to properly implement the SMP is a violation of the Environmental Easement and is grounds for revocation of the Certificate of Completion (COC).
- Failure to comply with this SMP is also a violation of Environmental Conservation Law, 6NYCRR Part 375, and the BCA (Index # B9-0696-05-06(B); Site #C951198) for the Controlled Property, and thereby subject to applicable penalties.

1.1.4 Revisions

Revisions to this Plan will be proposed in writing to the NYSDEC's project manager. In accordance with the Environmental Easement for the Controlled Property, the NYSDEC will provide a notice of any approved changes to the SMP, and append these notices to the SMP that is retained in its files.

1.2 Site Background

1.2.1 Site History

The approximate 143-acre Controlled Property formerly housed several facilities used in Bethlehem Steel Corporation's (BSC's) steel manufacturing processes. These included a pure oxygen generating station (known as South Linde Area); various mills; structural

shipping yard; car repair shop; metal storage; and miscellaneous office production support buildings. Five historical Solid Waste Management Units (SWMUs) (i.e., P-38 through P-42) are present within the Controlled Property. BSC performed assessments for these SWMUs during a Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) and subsequent RCRA Facility Investigation (RFI). Based on the findings, USEPA Region II issued "No Further Action" determination for the identified SWMUs within the Controlled Property.

The Controlled Property contains few structural remnants and other features associated with historic integrated steel-making facilities. These include the former 54" Bar Mill building; two separate electrical transformer stations; a former storage/welfare building to the south of Smokes Creek; the South Linde Area groundwater treatment system; and remnants of overhead lines, access roads, electrical power lines, and railroad tracks. Immediately east of the Controlled Property boundary is a man-made drainage channel designated as the SRWT that begins near WQCS No. 3 and flows south to Smokes Creek (see Figure 2). Historically and currently, the SRWT collects and discharges groundwater and storm water to Smokes Creek under active SPDES Permit No. NY-0269310. With the exception of treated groundwater discharges from the South Linde pump and treat system, there are no active outfalls into the SRWT from the Controlled Property.

1.2.2 BCP Application Process and Remedial Investigations

The BCP application for the Controlled Property was submitted May 20, 2005 and approved January 9, 2007. The July 2009 Remedial Investigation/Alternatives Analysis Report (RI/AAR) Work Plan identified characterization requirements to be completed pursuant to the BCP and NYSDEC DER-10 guidance. Remedial Investigation (RI) activities were initiated in March 2010 and completed in April 2010. A supplemental test pit investigation was conducted in February 2012 to determine the lateral and vertical extent of arsenic impacts in test pits BPA2-TP-10, -21, -40, -52, -58, and -103. Following subdivision of the Controlled Property, NYSDEC determined that due to the limited nature of the soil analytical work on Site II-1, a supplemental test pit investigation would be necessary to support the pending Decision Document. In March 2013, three supplemental test pits were advanced to native soil, field-screened with a PID, and sampled for laboratory analysis.

The RI/AA Report was submitted to NYSDEC in May 2011, revised, and finalized in March 2012. The RI/AA Report recommended remediation of hotspot slag/fill, localized saturated slag/fill (smear zone), and isolated groundwater (affecting only Site II-4), with cover placement recommended as the final remedial measure for all areas of the Controlled Property. Results of the March 2013 supplemental test pit investigation on Site II-1 were submitted in a letter report to NYSDEC on April 17, 2013.

1.2.3 Interim Remedial Measures Investigation

In order to maximize the redevelopment potential in the Business Parks along NYS Route 5 and improve the currently limited access to and from the Tecumseh property, active rail lines along NYS Route 5 were to be relocated to the western edge of the Phase I Business Park and the Controlled Property as well as into a portion of the Phase III Business Park. Because the rail relocation was to precede final cleanup and redevelopment activities in the Business Parks, it was agreed with the NYSDEC that an Interim Remedial Measure (IRM) would be performed involving removal of hotspot soil/fill from the new corridor area and placement of cover beneath the newly constructed tracks. As part of the remedial work on the Controlled Property, a pre-IRM investigation was undertaken in May 2009 along the planned location for the railroad realignment. The work involved excavation of 48 test pits along the proposed railroad realignment area to allow for visual/olfactory and PID assessment of subsurface conditions and to obtain representative samples for chemical characterization. Although 52 test pits were originally planned, four of these test pits were not completed as the locations fell at the center of the SRWT or the existing railroad track. The test pit locations were focused on the portion of the planned rail realignment that fell within the Controlled Property and Phase III Business Park, since the RI and required hotspot soil removal activities in the Phase I Business Park were already complete. The test pits, which were spaced at approximate 100-foot intervals, were excavated to native soils or the top of the water table with the majority of the samples collected from the shallow (0-2 feet below grade) slag/fill to characterize the interval of greatest potential exposure. Upon completion of each test pit, the associated slag/fill material was returned to the excavation in the opposite order in which it was removed and compacted to match existing grade.

Results of the rail corridor IRM investigation are presented in the NYSDEC-approved October 2010 IRM Work Plan for Railroad Realignment.

1.2.4 Geologic Conditions

The United States Department of Agriculture Soil Survey of Erie County, New York indicates that the Controlled Property is covered by surface soil classified as Urban Land; soil consisting of paved, foreign, or disturbed soils. Subsurface lithology observed during test pit excavation generally consisted of a soil/fill unit comprised of non-cohesive coal and coke fines; slag; cindery ash and brick; concrete; gravel; silt; reddish silt (precipitator dust); and sand, all of which are ubiquitous on the Controlled Property. Boring logs from monitoring wells constructed on the Controlled Property indicate that the thickness of the soil/fill unit ranges from approximately four feet (west side) to 12 feet (east side). Below the soil/fill unit is a native silty clay or clayey silt layer; a peat layer was noted at some test pits immediately below the soil/fill unit. The clay/silt/peat layers are underlain by Dolomitic limestone with shale bedding. This bedrock was encountered at 34 feet below ground surface (fbgs) along the western perimeter of the Controlled Property.

Historically, due to the proximity of Lake Erie and municipal supplied water, groundwater in the area has not been developed for industrial, agricultural, or public supply purposes. There is a deed restriction that prohibits the use of groundwater on the 1,100-acre Tecumseh property; consequently, no groundwater supply wells are present on the Controlled Property.

Groundwater elevation measurements taken on April 30, 2010 from existing and newly installed wells/ monitoring wells on the Controlled Property indicate that the first water bearing zone (i.e., water table) ranges from approximately 6 to 13 feet below ground surface (fbgs) within the soil/slag-fill unit. Examination of the isopotential map prepared for the fill unit from the April 2010 groundwater elevations (see Figure 4), indicates that shallow groundwater generally flows toward the minor water bodies of the Controlled Property (e.g., Smokes Creek and the SRWT) in conjunction with a westerly component (northwest portion of the Controlled Property) toward major water body Lake Erie. The SRWT is in hydraulic connection with the shallow groundwater on the Controlled Property and flows south into Smokes Creek, which then flows westerly ultimately discharging into Lake Erie. The three recovery wells in the South Linde area (Site II-4) create an inward localized gradient.

1.3 Summary of Remedial Investigation Findings

A Remedial Investigation (RI) was performed to characterize the nature and extent of contamination on the Controlled Property. The results of the RI are described in detail in the following report:

- Remedial Investigation/Alternatives Analysis Report (RI/AAR), Phase II Business Park, Tecumseh Redevelopment Inc., Lackawanna, New York prepared by TurnKey Environmental Restoration, LLC, Revised March 2012.

Generally, the RI determined that conditions were consistent with the historic use of the Controlled Property for steel-making and finishing operations, with the widespread presence of fill material containing dark brown, non-plastic fines with fine to medium sand, slag, cinders, ash, gravel, cobbles, brick, metal debris, and concrete, all of which are ubiquitous on the Controlled Property. Soil/fill concentrations, where identified above 6NYCRR Part 375 commercial-use soil cleanup objectives (SCOs), varied according to the type and nature of the constituents. Specifically, elevated concentrations of volatile petroleum compounds (i.e., elevated PID readings) were observed at two test pit locations where field evidence of impact was observed (e.g., odor, sheen, and staining). Base-neutral semi-volatiles (i.e., polyaromatic hydrocarbons or PAHs) were detected at several locations above commercial SCOs; however, only three total SVOC concentrations were reported above 500 parts per million (ppm), which was deemed a site-specific SCO based on NYSDEC CP-51 guidance for non-residential sites where a cover system will be employed. Certain metals (total arsenic, mercury, and lead) were detected above commercial SCOs at several locations. Smear zone impact was present in several locations as indicated by sheen and/or product on the water within the test pit, odor and staining. Field evidence of groundwater impact was observed within the South Linde Area.

Below is a summary of conditions on the Controlled Property when the RI was performed in 2010. Table 1 summarizes the soil/fill concentrations detected during the RI. Tables 2 and 3 summarize the soil/fill concentrations for the supplemental test pit investigations in February 2012 and March 2013. Tables 1 and 3 compare the data to Part 375 restricted-commercial SCOs. Table 4 summarizes the groundwater concentrations detected during the RI with a comparison to Class GA groundwater quality standards and guidance values (GWQS/GVs).

Soil/Fill

Surface and subsurface soil/fill samples were collected from the Controlled Property in March and April 2010 in accordance with the NYSDEC-approved July 2009 RI/AAR Work Plan. The 2010 soil/fill investigation involved excavation of 105 test pits. A total of 56 surface soil/fill samples (typically collected from 0-2 fbgs) and 16 subsurface soil samples were collected from those test pit locations during the RI. One surface soil sample [SS-1(0-0.5)] was collected near the electrical transformer for analysis of PCBs. Water samples were collected from two test pits for the following reasons:

- BPA2-TP-36 for analysis of SVOCs and PCBs at the request of NYSDEC since the test pit was excavated near an electrical transformer and sheen was observed on the water at approximately 3 fbgs.
- BPA2-TP-81B for analysis of VOCs, SVOCs, and PCBs at the request of NYSDEC due to sheen observed on the water at approximately 5 fbgs. In addition, a slight odor was detected and the remains of a drum were found.

RI soil/fill samples collected from test pits BPA2-TP-10, -21, -40, -52, -58, and -103 exceeded the site-specific action level (SSAL) for arsenic of 118 ppm. On February 27 and 28, 2012, TurnKey sampling personnel revisited these locations to determine the lateral and vertical extent of arsenic impact. Tests pits were excavated at distances of 10 and 20 feet in each compass direction from the original test pit sample location. Surface soil/fill samples were collected using a dedicated stainless steel spoon to scrape a representative sample from the test pit sidewall to a maximum depth of 2 fbgs. The 10-foot samples were analyzed immediately upon receipt by TestAmerica Laboratory and the 20-foot samples were placed on hold pending the results of the 10-foot samples. The original test pit sample result was confirmed by collection and analysis of a sample adjacent to the original RI test pit sample (designated as "R"). Due to the discrepancy between the lead concentration in the sample collected from BPA2-TP-58 (12,300 ppm) and its blind field duplicate (216 ppm), the supplemental test pit samples collected were also analyzed for lead.

The RI findings indicate conditions consistent with the historic use of the Controlled Property for steel-making and finishing operations, and the widespread presence of fill materials containing slag and cindery ash. Key observations and findings from the soil/fill and groundwater investigations are listed below:

- Field observation of potential subsurface impact by petroleum was recorded at certain test pit locations. However, samples from the associated depth intervals yielded VOC concentrations below commercial SCOs and, with the exception of test pits BPA2-TP-80 and BPA2-TP-93, SVOC concentrations at levels less than 500 ppm, suggesting that the observations are representative of residual, weathered organics that do not constitute a remaining source area. Floating product was observed on the water table in test pits BPA2-TP-53 (5 fbgs), BPA2-TP-89 (4.5 fbgs), BPA2-TP-93 (6.5 fbgs), and BPA2-TP-95 (8 fbgs). Elevated PID readings were noted in test pits BPA2-TP-16, and BPA2-TP-99, -99A, and -99B.
- The remains of a drum were found within test pit BPA2-TP-81B; the drum fragment was removed. Sheen was observed on the water at approximately 9 fbgs, a slight odor was detected, and the soil/fill was noted to be a little greasy. The soil/fill sample collected from 9-9.5 fbgs yielded SVOCs at a total concentration of 204 ppm
- Base-neutral SVOCs (i.e., PAHs) were detected above the commercial SCOs at several test pit locations across the Controlled Property. NYSDEC's CP-51/Soil Cleanup Guidance Policy (October 21, 2010) provides for an alternative SCO (i.e., in lieu of individual SCOs) for soils of 500 ppm total SVOCs where: end use of the site will be for commercial or industrial purposes; a cover system (1 foot of clean soil, building and/or pavement) will be constructed; and institutional controls and an SMP will be implemented. Total PAH concentrations were reported at less than 500 ppm, with the exception of BPA2-TP-80 (0-2 fbgs) where total SVOCs were reported at 663 ppm; BPA2-TP-85 (0-2 fbgs), where total SVOCs were reported at 1,577 ppm; and BPA2-TP-93 (4-6 fbgs) where total SVOCs were reported at 3,958 ppm. Test pit BPA2-TP-93 also showed associated evidence of visual or olfactory impact (i.e., slight sheen, slight odor, and product on the water).
- Arsenic was detected above the commercial SCO of 16 mg/kg at the majority of the test pit locations. Arsenic is a ubiquitous metal with urban background soils in New York State frequently containing concentrations in excess of the commercial SCO, particularly at active and former industrial properties characterized by historic slag fill deposition and coal burning, such as that which occurred on the subject property. Accordingly, comparison of the arsenic data to site-specific background or average concentrations is considered appropriate. To determine the site background concentration, all surface (0-2 fbgs) soil/fill arsenic data for the Controlled Property was tabulated and the 95% upper confidence limit (95% UCL) on the mean was calculated. Based on this analysis and further discussions with the NYSDEC, a site-specific action level (SSAL) of 118 ppm was established as the screening criteria for hotspot identification. The following six test pit areas

exceeded this SSAL: BPA2-TP-10 (est. 245 ppm), BPA2-TP-21 (est. 119 ppm), BPA2-TP-40 (est. 152 ppm), BPA2-TP-52 (141 ppm), BPA2-TP-58 (122 ppm), and BPA2-TP-104 (est. 198 ppm). The supplemental test pit investigation surrounding these six test pit locations undertaken in February 2012 provided a more definitive delineation of these hotspot areas.

- Elevated lead was detected in the shallow fill (0-2 fbgs) of BPA2-TP-58 (former Oil Pump House). Due to the disparity between the concentrations detected in the sample (12,300 mg/kg) and its blind duplicate (216 mg/kg), the data was qualified as estimated and suspect. This means that lead was present but the quantitative value was unknown. No visual evidence of impact was noted. The supplemental surface soil/fill samples collected surrounding BPA2-TP-58 indicated results below the commercial SCO for lead, suggesting that the original result was anomalous.
- Mercury was identified at elevated levels above the commercial SCO in shallow fill at BPA2-TP-64 (near former repair shop/sump), BPA2-TP-67 (near former transformer vault), and BPA2-TP-69 (near former 54" Blooming Mill, pump house, and pit). These test pits were concentrated in one area; however, their locations were selected to determine the potential impact from three different former activities on the Controlled Property. These findings suggest potential localized shallow releases from one of these former operations. The mercury concentrations were all below the industrial SCO of 5.7 mg/kg.
- Other inorganic compounds (barium, cadmium, manganese, and cyanide) were sporadically detected at concentrations slightly above the commercial SCOs but below the industrial SCOs, with the exception of manganese. The industrial SCO for manganese is capped at a maximum value of 10,000 ppm, which is not based on health risk concerns but instead on factors such as appearance, olfactory impacts, and saturation levels.
- PCB Aroclor 1254 exceeded the commercial SCO for PCBs of 1 mg/kg in the surface fill at test pit sample locations BPA2-TP-33 (former transformer Substation 8F) and BPA2-TP-48 (former Car Repair Shop); however, in both instances the total PCB concentrations fall below the industrial SCO of 25 mg/kg. Railroad Realignment test pit RR-TP-30, located in the vicinity of BPA2-TP-33 (PCB concentration of 2.37 ppm), was excavated due to a PCB concentration of 52 ppm (twice the industrial SCO). To define the lateral extent of this hotspot area, TurnKey conducted a supplemental investigation of this test pit. On August 19, 2010, a TurnKey project scientist excavated shallow test pits (approximately 25 feet in each compass direction) from the original test pit. Sidewall samples (0-2 foot) were collected and analyzed for PCBs. In addition, a composite sample was collected from the floor of the supplemental test pit to verify that a 2-foot excavation depth was sufficient. PCB concentrations at the supplemental

locations surrounding RR-TP-30 and at the 2-foot depth interval were all below the commercial SCO of 1 ppm.

- PCB Aroclor 1242 was detected above the GWQS of 0.09 ug/L in the unfiltered water sample collected from test pit BPA2-TP-81B; the remains of a drum were found and removed during excavation of this test pit located within the former 48"-54" Roughing Mill. The concentration of PCBs in the associated soil/fill sample was estimated at 0.602 mg/kg, which is well below the commercial SCO of 1 mg/kg.

Railroad Realignment IRM

In accordance with the NYSDEC-approved October 2010 IRM Work Plan for Railroad Realignment, four hotspot soil/fill areas with elevated arsenic and/or PCB levels were identified and delineated. These hotspot areas were excavated and disposed at permitted off-site disposal facilities in December 2010. A total of 1,280.55 tons of arsenic-impacted soil material was excavated from Test Pits (TP-4, TP-12, and TP-42) and disposed at the Chautauqua County Landfill in Ellery, New York. A total of 258.27 tons of PCB-impacted soil material was excavated from Test Pit TP-30 and disposed at CWM Chemical Services, LLC in Model City, NY as regulated hazardous waste. The removal activities were observed by the NYSDEC and will be documented in a separate IRM Construction Completion Report (CCR). The CCR will be referenced in the FERs for the Sites.

Site-Related Groundwater

Following completion of the soil/fill portion of the investigation, five new shallow overburden monitoring wells and two new bedrock monitoring wells were installed to better determine groundwater flow direction and upgradient/downgradient groundwater quality on the Controlled Property. The groundwater monitoring points sampled during the RI include: existing monitoring wells MW-01, MW-07A, and MW-07B; newly installed overburden wells MWS-32A, MWS-36A, MWS-37A, MWN-63A, and MWN-64A; and newly installed bedrock wells MWN-63D and MWN-65D.

Field evidence of groundwater impact (LNAPL) was identified in monitoring well MW-01 (located in the South Linde Area, Site II-4), but the analytical data indicated no exceedances of the GWQS/GVs. Although pH and arsenic levels exceeded the GWQS at certain well locations, pH was within one unit of the standard and, with the exception of MW-01, arsenic was at the same order of magnitude as the GWQS/GV and/or exhibited

soluble arsenic below the GWQS/GV. Sheen observed in newly installed well MWN-64 may be a result of the elevated levels of SVOCs in the subsurface at test pit location BPA2-TP-93. With these limited exceptions, the groundwater investigation findings indicate that, as would be expected based on the relatively low solubility of the soil/fill constituents prevalent in the soil/fill matrix, widespread groundwater impact by COPCs is not evident. However, clearly discernible sheens in test pits combined with petroleum odor, free product, and/or elevated PID readings are indicative of potential localized impact to the saturated soil/fill (i.e., smear zone) due to past operations on the Controlled Property.

The RI findings indicate that, as would be expected based on the relatively low solubility of the soil/fill constituents prevalent in the soil/fill matrix, groundwater is generally not impacted by metal constituents of concern or PCBs.

Site-Related Soil Vapor Intrusion

Based on the Qualitative Human Health Exposure Assessment (Section 6.0 of the RI/AAR), it appears that the sub-slab vapor intrusion pathway does not pose a risk under the current or reasonably-anticipated future use scenario.

1.4 Summary of Remedial Actions

Table 4 summarizes the remedial actions performed or to be performed on the Controlled Property by Site. Completed remedial actions will be described within the Site-specific appendices (H-1 through H-12), which will be modified via addenda as the work progresses. The following Remedial Actions are common to all Sites:

1. Execution and recording of an Environmental Easement to restrict land use to commercial or industrial applications and prevent future exposure to any contamination remaining at the Site.
2. Development and implementation of a Site Management Plan for long term management of remaining contamination as required by the Environmental Easement, which includes plans for: (1) Institutional and Engineering Controls, (2) monitoring, (3) operation and maintenance and (4) reporting.

1.4.1 Removal of Contaminated Materials from the Site

1.4.1.1 Excavated Materials

Details on the removal of contaminated materials are presented within the Site-specific appendices. Figure 5 shows the approximate extent of these planned and completed excavations.

1.4.2 Backfill Materials

With NYSDEC concurrence, completed excavations will be backfilled with: steel slag under Beneficial Use Determination (BUD) #555-9-15; bioremediated soil/fill; and/or non-impacted slag/fill generated from the on-site excavation work. Backfill material will be placed into the excavation and compacted/tracked with the excavator/backhoe bucket in 2-foot lifts.

1.4.3 Site-Related Treatment Systems

The treatment systems to be installed on the Controlled Property are described within the Site-specific appendices.

1.4.4 Remaining Contamination

The remedial work conducted on the Controlled Property has or will: remove all known "source area" soil/fill (i.e., petroleum- and metal-impacted soil/fill); treat weathered petroleum-impacted saturated soil/fill in-situ; and remediate isolated groundwater impacts.

The remaining soil/fill is generally characterized by widespread exceedance of the Part 375 unrestricted-use SCOs for several ubiquitous constituents. Specifically, nearly all samples collected during the RI exhibited exceedance of the commercial SCOs for PAHs, as well as arsenic, lead, and mercury. Other constituents remaining above unrestricted-use SCOs in select areas of the Controlled Property include PCBs (Aroclors 1248, 1254, and 1260) and inorganic compounds (i.e., cadmium, chromium, manganese, nickel, and zinc). It is not possible to quantify with any certainty areas that do not exceed one or more of the unrestricted-use SCO criteria; therefore, it is assumed that the entire 142-acre Controlled Property is impacted above the unrestricted-use SCOs to the approximate native soil depth of 12 fbgs.

Remaining soil/fill and groundwater contamination is described further within the Site-specific appendices.

2.0 ENGINEERING & INSTITUTIONAL CONTROL PLAN

2.1 Introduction

2.1.1 General

Since remaining contaminated soil/fill and groundwater exists beneath the Controlled Property, Engineering Controls and Institutional Controls (EC/ICs) are required to protect human health and the environment. This Engineering and Institutional Control Plan describes the procedures for the implementation and management of all EC/ICs at the Controlled Property. The EC/IC Plan is one component of the SMP and is subject to revision by NYSDEC.

2.1.2 Purpose

The EC/IC Plan provides:

- A description of all EC/ICs on the Controlled Property.
- The basic implementation and intended role of each EC/IC.
- A description of the key components of the ICs set forth in the Environmental Easement.
- A description of the features to be evaluated during each required inspection and periodic review.
- A description of plans and procedures to be followed for implementation of EC/ICs, such as the implementation of the Excavation Work Plan for the proper handling of remaining contamination that may be disturbed during maintenance or redevelopment work on the Controlled Property.
- Any other provisions necessary to identify or establish methods for implementing the EC/ICs required by the remedy, as determined by the NYSDEC.

2.2 Engineering Controls

The engineering control common to the Controlled Property is the cover system described below. Other engineering controls (e.g., vapor barriers, sub-slab depressurization systems) specific to Sites are described in Appendix H.

2.2.1 Cover System

Exposure to remaining contamination in soil/fill will be prevented by a cover system placed over the Controlled Property. The cover system will be placed following measures to address hotspots and saturated soil/groundwater impact (where present). Ideally the cover system will be placed as each Site is redeveloped, but will otherwise be required before sunset of the NYSDEC BCP to avoid forfeit of BCP tax credits. This cover system will be comprised of a minimum of 12 inches of clean soil, stone or NYSDEC-approved materials, with a demarcation layer (i.e., geotextile fabric, orange poly netting, or similar non-degradable visual demarcation) in all areas that are not paved or covered by concrete or structures. The cover system will be placed to address remaining non-mobile, ubiquitous contaminants (e.g., metals, PAHs, etc.) during the redevelopment stage and prior to occupancy. Paved areas (i.e., buildings, roadways, parking lots) will be covered by asphalt pavement or concrete. The final soil cover shall meet the specifications presented in the Excavation Work Plan (see Appendix B, Section 4.0). The Excavation Work Plan outlines the procedures required to be implemented in the event the cover system is breached, penetrated, or temporarily removed, and any underlying remaining contamination is disturbed. Procedures for the inspection and maintenance of this cover are provided in the Monitoring Plan included in Section 4 of this SMP.

2.2.2 Criteria for Completion of Remediation/Termination of Remedial Systems

Generally, remedial processes are considered completed when effectiveness monitoring indicates that the remedy has achieved the Remedial Action Objectives identified by the Decision Document. The framework for determining when remedial processes are complete is provided in Section 6.6 of NYSDEC DER-10.

The cover system is a permanent control and the quality and integrity of the system will be inspected at defined, regular intervals in perpetuity.

2.3 Institutional Controls

A series of Institutional Controls is required to: (1) implement, maintain, and monitor Engineering Control systems; (2) prevent future exposure to remaining contamination by controlling disturbances of the subsurface contamination and precluding groundwater use

for potable purposes; and, (3) limit the use and development of the Controlled Property to commercial/industrial type uses only. Adherence to these Institutional Controls is required by the Environmental Easement and will be implemented under this Site Management Plan. These Institutional Controls are:

- Compliance with the Environmental Easement and this SMP by the Grantor and the Grantor's successors and assigns.
- All Engineering Controls must be operated and maintained as specified in this SMP.
- All Engineering Controls on the Controlled Property must be inspected at a frequency and in a manner defined in the SMP.
- Groundwater and other environmental or public health monitoring must be performed as defined in this SMP.
- Data and information pertinent to site management of the Controlled Property must be reported at the frequency and in a manner defined in this SMP.

Institutional Controls identified in the Environmental Easement may not be discontinued without an amendment to or extinguishment of the Environmental Easement.

The Controlled Property has a series of site-wide Institutional Controls in the form of restrictions. Adherence to these Institutional Controls is required by the Environmental Easement. Restrictions for the Controlled Property:

- Allow the use and development of the Controlled Property for commercial and industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- Restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH;
- Requires compliance with the Department-approved Site Management Plan; and
- Requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8(h)(3.)

Additional Site-specific restrictions (if any) are presented in Appendix H.

2.3.1 Excavation Work Plan

The Controlled Property will be remediated for restricted-commercial/industrial use. Any future intrusive work that will penetrate the soil cover or cap, or encounter or disturb the remaining contamination, including any modifications or repairs to the existing cover system, will be performed in compliance with the Excavation Work Plan (EWP) included as Appendix B. Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) prepared for the Controlled Property. Appendix C includes a sample HASP that is in current compliance with DER-10; 29 CFR 1910; 29 CFR 1926; and all other applicable Federal, State, and local regulations. Based on future changes to State and federal health and safety requirements, and specific methods employed by future contractors, the HASP and CAMP will be updated and re-submitted with the notification described in Section 1.2 of the EWP. Any intrusive construction work will be performed in compliance with the EWP, HASP, and CAMP, and will be included in the periodic inspection and certification reports described in Section 5.0.

The Site Owners and associated parties preparing the remedial documents for submittal to the State, and parties performing this work, are completely responsible for the safe performance of all intrusive work, the structural integrity of excavations, proper disposal of excavation de-water, control of runoff from open excavations into remaining contamination, and for structures that may be affected by excavations (such as building foundations and bridge footings). The Site Owners will ensure that redevelopment activities will not interfere with, or otherwise impair or compromise, the engineering controls described in this SMP.

2.4 Inspections and Notifications

2.4.1 Inspections

A comprehensive inspection of the Controlled Property will be conducted annually, regardless of the frequency of the Periodic Review Report. The inspections will determine and document the following:

- Whether Engineering Controls continue to perform as designed.
- If these controls continue to be protective of human health and the environment.

- Compliance with requirements of this SMP and the Environmental Easement.
- Achievement of remedial performance criteria.
- Sampling and analysis of appropriate media during monitoring events.
- If Site records are complete and up to date.
- Changes, or needed changes, to the remedial or monitoring system.

Inspections will be conducted in accordance with the procedures set forth in Section 3.0, Site Monitoring Plan. Reporting requirements are outlined in Section 5.3, Periodic Review Report.

If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs, an inspection of the affected area of the Controlled Property will be conducted by a Qualified Environmental Professional (QEP) as defined in NYSDEC DER-10 within five days of the event to verify the effectiveness of the EC/ICs implemented.

2.4.2 Notifications

Notifications will be submitted by the Site Owner to the NYSDEC as needed for the following reasons:

- 60-day advance notice of any proposed changes in use that are required under the terms of the BCA, 6NYCRR Part 375, and/or Environmental Conservation Law. This shall include planned expansions onto any undeveloped portion of the Site that is not already covered with 12 inches of approved cover material.
- 15-day advance notice of any proposed ground-intrusive activities pursuant to the EWP.
- Notice within 48 hours of any damage or defect to the foundations structures that reduces or has the potential to reduce the effectiveness of other Engineering Controls and likewise any action to be taken to mitigate the damage or defect.
- Notice within 48 hours of any emergency, such as a fire, flood, or earthquake that reduces or has the potential to reduce the effectiveness of Engineering Controls in place at the Site, including a summary of actions taken, or to be taken, and the potential impact to the environment and the public.
- Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action shall be submitted to the NYSDEC within 45 days and shall describe and document actions taken to restore the effectiveness of the ECs.

Any change in the ownership of any Site within the Controlled Property or responsibility for implementing this SMP will include the following notifications:

- At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser has been provided with a copy of the BCA, and all approved work plans and reports, including this SMP.
- Within 15 days after the transfer of all or part of the Site, the new owner's name, contact representative, and contact information will be confirmed in writing.

2.5 Contingency Plan

Emergencies may include injury to personnel, fire or explosion, environmental release, or serious weather conditions. These conditions are addressed in the Emergency Response Plan (ERP) included as Attachment C-1 to the HASP. This Contingency Plan, a summary of the ERP, describes potential emergencies that may occur at the Site; procedures for responding to those emergencies; roles and responsibilities during emergency response; and training all workers must receive in order to follow emergency procedures. This Contingency Plan also describes the provisions this Site has made to coordinate its emergency response planning with other contractors on-site and with off-site emergency response organizations.

2.5.1 Emergency Telephone Numbers

In the event of any environmentally related situation or unplanned occurrence requiring assistance, the affected Site Owner or Owner's representative(s) should contact the appropriate party from the contact list below. For emergencies, appropriate emergency response personnel should be contacted. Prompt contact should also be made to the QEP. These emergency contact lists must be maintained in an easily accessible location at the Site. Site-specific contacts will be included in Appendix H.

Table 6: Emergency Contact Numbers

Medical, Fire, and Police:	911
One Call Center:	(800) 272-4480 (3-day notice required for utility mark out)
Poison Control Center:	(800) 222-1222
Pollution Toxic Chemical Oil Spills:	(800) 424-8802
NYSDEC Spills Hotline	(800) 457-7362

Table 7: Contact Numbers

Thomas H. Forbes, P.E. Qualified Environmental Professional (QEP)	Work: (716) 856-0599 Mobile: (716) 864-1730
Thomas H. Forbes, P.E. Site Safety and Health Officer (SSHO)	Work: (716) 856-0599 Mobile: (716) 864-1730
Richard L. Dubisz Alternate SSHO	Work: (716) 856-0635 Mobile: (716) 998-4334

* Note: Contact numbers subject to change and should be updated as necessary

2.5.2 Map and Directions to Nearest Health Facility

Site Location: 1951 Hamburg Turnpike, Lackawanna, New York 14218

Nearest Hospital Name: Mercy Hospital

Hospital Location: 565 Abbott Road, Buffalo, NY 14220

Hospital Telephone: (716) 826-7000

Directions to the Hospital (see Figure 6):

1. From the Buffalo Crushed Stone site access drive (or Gate2); turn left onto the Hamburg Turnpike (Route 5).
2. Proceed east on Hamburg Turnpike (Route 5) to the Tifft Street exit; turn right onto Tifft Street.
3. Take Tifft Street east crossing South Park Avenue and McKinley Parkway. Bear left on Edgewood Avenue.

4. Turn right onto Abbott Road and Mercy Hospital will be on right hand side. Follow signs to emergency room (ER).

Total Distance: 5 miles

Total Estimated Time: 10 minutes

2.5.3 Response Procedures

As appropriate, the fire department and other emergency response group will be immediately notified of the emergency. Table 6 provides the emergency telephone numbers.

3.0 SITE MONITORING PLAN

3.1 Introduction

3.1.1 General

The Site Monitoring Plan describes the measures for evaluating the performance and effectiveness of: the remedy to reduce or mitigate contamination on the Controlled Property; the cover system; and all affected media. Monitoring of other Engineering Controls is described in Section 4.0, Operation, Monitoring, and Maintenance Plan. The Site Monitoring Plan may only be revised with the approval of NYSDEC.

3.1.2 Purpose and Schedule

The Monitoring Plans presented within the Site-specific appendices describe the methods to be used for:

- Sampling and analysis of applicable Site media.
- Assessing compliance with applicable NYSDEC standards, criteria and guidance, particularly ambient groundwater standards and Part 375 SCOs for soil.
- Assessing achievement of the remedial performance criteria.
- Evaluating Site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment.
- Preparing the necessary reports for the various monitoring activities.

To adequately address these issues, the Monitoring Plans provide information on:

- Sampling locations, protocol, and frequency.
- Information on all designed monitoring systems (e.g., well logs).
- Analytical sampling program requirements.
- Reporting requirements.
- Quality assurance/quality control (QA/QC) requirements (see Appendix G).
- Inspection and maintenance requirements for monitoring wells.
- Monitoring well decommissioning procedures.
- Annual inspection and periodic certification.

3.2 Cover System Monitoring

The cover system is common to the Controlled Property and is therefore discussed herein. All other monitored systems are discussed within the Site-specific appendices.

Annual visual inspection and maintenance (e.g., filling in ruts with approved cover materials, re-vegetation of soil covered areas, pothole repair, etc.) of the cover systems will be required to assure cover integrity and prevent exposure to underlying soil/fill.

3.3 Annual Inspection

Inspections of the Controlled Property will be performed on a regular schedule at a minimum of once per year. Inspections will also be performed after all severe weather conditions that may affect Engineering Controls or monitoring devices. During these inspections, an inspection form will be completed (Appendix F). The form will compile sufficient information to assess the following:

- Compliance with all ICs, including usage restrictions.
- An evaluation of the condition and continued effectiveness of ECs.
- General conditions at the time of the inspection.
- The site management activities being conducted including, where appropriate, confirmation sampling and a health and safety inspection.
- Compliance with permits and schedules included in the Operation and Maintenance Plan.
- Confirm that required records are up to date.

4.0 OPERATION & MAINTENANCE PLAN

The remedy for the Controlled Property does not rely on mechanical systems to protect public health and the environment. Therefore, the operation and maintenance (O&M) of such components is not included in the body of this SMP. To the extent that certain Sites require reliance on such systems, the system descriptions and O&M requirements are included in Appendix H.

Information on non-mechanical Engineering Controls (i.e., cover system) is provided in Section 3.0 - Engineering and Institutional Control Plan.

5.0 INSPECTIONS, REPORTING & CERTIFICATIONS

5.1 Site Inspections

5.1.1 Inspection Frequency

All inspections will be conducted at the frequency specified in the Section 3.0 of this SMP. At a minimum, inspections will be conducted annually across the Controlled Property. Inspections of the cover system will also be conducted whenever a severe condition has taken place, such as erosion or a flooding event.

5.1.2 Inspection Forms

Appendix F includes the forms for recording cover system inspections and the annual inspection. Site-specific inspection forms will be mailed by the Department with its standard 45-day notice. A common entity (e.g., Business Park Association) will complete a separate IC/EC inspection form for each Site and include these as an attachment to the Period Review Report discussed in Section 5.3.

All applicable inspection forms and system maintenance reports, generated during the reporting period, will be provided in electronic format in the Periodic Review Report described in Section 5.3.

5.1.3 Evaluation of Records & Reporting

The results of the inspections and monitoring data will be evaluated as part of the EC/IC certification to confirm that the:

- EC/ICs are in place, are performing properly, and remain effective;
- The Site Monitoring Plan is being implemented;
- Operation and maintenance activities are being conducted properly; and, based on the above items;
- The remedy, including Site-specific remedial measures, continues to be protective of public health and the environment and is performing as designed in the Site-specific RAWPs and FERs.

5.2 Certification of Engineering and Institutional Controls

Following the last inspection of the reporting period, a Professional Engineer (P.E.) licensed to practice in New York State or a QEP[2] will complete an IC/EC certification form for each of the Sites having received COCs. The IC/EC forms, which will be signed by the P.E. and the Site Owner or the Owner's representative, will include the following certification:

For each institutional or engineering control identified for the Site, I certify that all of the following statements are true:

- The inspection of the Site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under my direction;
- The institutional control and/or engineering control employed at this Site is unchanged from the date the control was put in place, or last approved by the Department;
- Nothing has occurred that would impair the ability of the control to protect the public health and environment;
- Nothing has occurred that would constitute a violation or failure to comply with any Site management plan for this control;
- Access to the Site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control;
- If a financial assurance mechanism is required under the oversight document for the Site, the mechanism remains valid and sufficient for the intended purpose under the document;
- Use of the Site is compliant with the environmental easement;
- The engineering control systems are performing as designed and are effective;
- To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the Site remedial program and generally accepted engineering practices; and
- The information presented in this report is accurate and complete.

[2] A Qualified Environmental Professional other than a licensed Professional Engineer (P.E.) may complete the certification if the engineering controls are limited to non-mechanical systems. Active groundwater remediation systems, soil vapor extraction systems, etc., require P.E. certification.

- I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, [name], of [business address], am certifying as [Owner or Owner's Designated Site Representative] (and if the site consists of multiple properties): [and I have been authorized and designated by all site owners to sign this certification] for the Site.

For Sites that the Department has determined do not represent a significant threat to public health or the environment, but where contaminants in groundwater exceed drinking water standards, the following should also be included:

- No new information has come to my attention, including groundwater monitoring data from wells located at the Site boundary, if any, to indicate that the assumptions made in the qualitative exposure assessment of off-site contamination are no longer valid; and

Every five years the following certification will be added:

- The assumptions made in the qualitative exposure assessment remain valid.

The signed certification will be included in the common Periodic Review Report described below.

5.3 Periodic Review Report

A Periodic Review Report (PRR) covering all Sites in the Controlled Property for which COCs were issued will be submitted to the Department every year, beginning 16 months after the first COC is issued. A common entity (e.g., Business Park Association) will be designated as the responsible entity for receiving PRR notices, coordinating and arranging for the above-described inspections and certifications, and preparing the PRR deliverables. The PRR will be prepared in accordance with NYSDEC DER-10 and submitted within 45 days of the end of each certification period. Media sampling results will also incorporated into the PRR. The report will include:

- Identification, assessment and certification of all ECs/ICs required by the remedy for each Site;
- Results of the required annual inspections and severe condition inspections, if applicable;

- All applicable inspection forms and other records generated during the reporting period in electronic format;
- A summary of any discharge monitoring data and/or information generated during the reporting period with comments and conclusions;
- Data summary tables and graphical representations of contaminants of concern by media (groundwater, soil vapor), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These will include a presentation of past data as part of an evaluation of contaminant concentration trends;
- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted electronically in a NYSDEC-approved format;
- An evaluation, which includes the following:
  - The compliance of the remedy with the requirements of the Site-specific Decision Documents;
  - The operation and the effectiveness of all treatment units, etc., including identification of any needed repairs or modifications;
  - Any new conclusions or observations regarding Site contamination based on inspections or data generated by the Monitoring Plan for the media being monitored;
  - Recommendations regarding any necessary changes to the remedy and/or Monitoring Plan; and
  - The overall performance and effectiveness of the remedy.
- A performance summary for all treatment systems at the Site during the calendar year, including information such as:
  - The number of days the system was run for the reporting period;
  - The average, high, and low flows per day;
  - The contaminant mass removed;
  - A description of breakdowns and/or repairs along with an explanation for any significant downtime;
  - A description of the resolution of performance problems;
  - A summary of the performance, effluent and/or effectiveness monitoring; and
  - Comments, conclusions, and recommendations based on data evaluation.

The PRR will be submitted, in hard-copy format, to the NYSDEC Central Office and Region 9 Office, and in electronic format to NYSDEC Central Office, Region 9 Office, and the NYSDOH Bureau of Environmental Exposure Investigation.

5.4 Corrective Measures Plan

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control, a Corrective Measures Plan will be submitted to the NYSDEC for approval. This Plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the Corrective Measures Plan until it is approved by the NYSDEC.

TABLES

TABLE 1

SUMMARY OF RI SOIL/FILL ANALYTICAL DATA COMPARED TO RESTRICTED-COMMERCIAL SCOs

SITE MANAGEMENT PLAN

Phase II Business Park
Lackawanna, New York

Parameter [1]	Sample Location, Depth Interval (fbgs), and Type																					Restricted-Commercial SCO[2] (mg/kg)
	TP-85	TP-86	TP-89	TP-90	TP-91	TP-92	TP-93	TP-94	TP-95	TP-95B	TP-96	TP-97	TP-98	Blind 5	TP-99	TP-99	TP-99B	TP-100	TP-103	TP-104	TP-105	SS-1	
	0.0 - 2.0	0.0 - 2.0	4.0 - 6.0	0.0 - 2.0	0.0 - 2.0	0.0 - 2.0	4.0 - 6.0	0.0 - 2.0	6.0 - 8.0	3.0 - 4.0	0.0 - 2.0	0.0 - 2.0	0.0 - 0.5	(TP-98)	0.0-0.5	5.0-8.0	6.0-8.0	0.0-2.0	0.0-2.0	0.0-2.0	0.0-2.0	0.0-0.5	
Volatile Organic Compounds (VOCs) - mg/kg																							
Acetone	--	ND	ND	--	--	ND	--	--	ND	--	ND	--	--	--	--	ND	ND	ND	--	--	ND	--	**500**
Benzene	--	ND	ND	--	--	ND	ND	ND	0.25 DWNJ	--	ND	--	--	--	--	ND	ND	ND	--	--	ND	--	**44**
2-Butanone	--	ND	ND	--	--	ND	--	--	ND	--	ND	--	--	--	--	ND	ND	ND	--	--	ND	--	**--**
Chlorobenzene	--	ND	ND	--	--	ND	--	--	0.2 DW	--	ND	--	--	--	--	ND	ND	ND	--	--	ND	--	**500**
Chlorohexane	--	ND	ND	--	--	ND	--	--	0.42 DW	--	ND	--	--	--	--	ND	ND	ND	--	--	ND	--	**--**
Cyclohexane	--	ND	ND	--	--	ND	--	--	0.42 DW	--	ND	--	--	--	--	ND	ND	ND	--	--	ND	--	**--**
1,2-Dichlorobenzene	--	ND	ND	--	--	ND	--	--	34 DW	--	ND	--	--	--	--	ND	ND	ND	--	--	ND	--	**500**
1,3-Dichlorobenzene	--	ND	ND	--	--	ND	--	--	0.46 DWNJ	--	ND	--	--	--	--	ND	ND	ND	--	--	ND	--	**280**
1,4-Dichlorobenzene	--	ND	ND	--	--	ND	--	--	3.9 DW	--	ND	--	--	--	--	ND	ND	ND	--	--	ND	--	**130**
Ethylbenzene	--	ND	ND	--	--	ND	ND	ND	0.25 DW	--	ND	--	--	--	--	ND	ND	ND	--	--	ND	--	**390**
n-Butylbenzene	--	ND	ND	--	--	ND	ND	ND	0.53 DWNJ	--	ND	--	--	--	--	ND	ND	ND	--	--	ND	--	**500**
sec-Butylbenzene	--	ND	ND	--	--	ND	ND	ND	0.24 DW	--	ND	--	--	--	--	ND	ND	ND	--	--	ND	--	**500**
Isopropylbenzene	--	ND	ND	--	--	ND	ND	ND	0.12 DWJ	--	ND	--	--	--	--	ND	ND	ND	--	--	ND	--	**--**
p-Cymene	--	ND	ND	--	--	ND	ND	ND	0.37 DW	--	ND	--	--	--	--	ND	ND	ND	--	--	ND	--	**--**
n-Propylbenzene	--	ND	ND	--	--	ND	ND	ND	0.36 DW	--	ND	--	--	--	--	ND	ND	ND	--	--	ND	--	**500**
Toluene	--	ND	ND	--	--	ND	ND	ND	0.34 DW	--	ND	--	--	--	--	ND	ND	ND	--	--	ND	--	**500**
1,2,4-Trichlorobenzene	--	ND	ND	--	--	ND	--	--	0.15 DWJ	--	ND	--	--	--	--	ND	ND	ND	--	--	ND	--	**--**
1,2,4-Trimethylbenzene	--	ND	0.22 W	--	--	ND	ND	ND	5.2 DW	--	ND	--	--	--	--	ND	ND	ND	--	--	ND	--	**190**
1,3,5-Trimethylbenzene	--	ND	ND	--	--	ND	ND	ND	1.8 DW	--	ND	--	--	--	--	ND	ND	ND	--	--	ND	--	**190**
o-Xylene	--	ND	ND	--	--	ND	ND	ND	0.75 DW	--	ND	--	--	--	--	ND	ND	ND	--	--	ND	--	**500**
m-Xylene	--	ND	ND	--	--	ND	--	--	1.5 DW	--	ND	--	--	--	--	ND	ND	ND	--	--	ND	--	**500**
Xylenes, Total	--	ND	ND	--	--	ND	ND	ND	2.2 DW	--	ND	--	--	--	--	ND	ND	ND	--	--	ND	--	**500**
Naphthalene	--	ND	ND	--	--	ND	0.063	0.066	ND	--	ND	--	--	--	--	ND	ND	ND	--	--	ND	--	**500**
Methylcyclohexane	--	ND	0.11 WJ	--	--	ND	--	--	1.1 DW	--	ND	--	--	--	--	ND	ND	ND	--	--	ND	--	**--**
Methyl tert butyl ether	--	ND	ND	--	--	ND	ND J	ND	ND	--	ND	--	--	--	--	ND	ND	ND	--	--	ND	--	**500**
Methylene Chloride	--	0.0065	0.09 WJ	--	--	ND	--	--	ND	--	0.0036 J	--	--	--	--	0.0064	0.0076	ND	--	--	0.0082	--	**500**
TOTAL VOCs (mg/kg)	--	*0.007*	*0.420*	--	--	*0*	*0.063*	*0.066*	*52.4*	--	*0.004*	--	--	--	--	*0.006*	*0.008*	*0*	--	--	*0.008*	--	--
Semi-Volatile Organic Compounds (SVOCs) - mg/kg																							
Acenaphthene	27 D	ND	1.4 TDJ	ND	ND	ND	4.4 DT	0.19 DJ	ND	--	ND	2.6 DJ	--	--	--	--	--	0.29 DJ	ND	ND	0.41 DJ	--	**500**
Acenaphthylene	3.7 DJ	ND	ND	0.4 DJ	0.32 DJ	0.15 DJ	89 TDJ	ND	1.9 TDJ	--	0.23 DJ	ND	--	--	--	--	--	2.4 D	ND	5.3 DJ	0.24 DJ	--	**500**
Acetophenone	ND	ND	ND	ND	ND	ND	ND	ND	3.6 TDJ	--	ND	ND	--	--	--	--	--	ND	ND	ND	ND	--	**--**
Anthracene	7.1 D	0.84 DJ	6 TDJ	1.5 DJ	0.3 DJ	ND	120 DT	0.46 DJ	4.7 TDJ	--	0.34 DJ	13 D	--	--	--	--	--	3 D	0.2 DJ	7.6 DJ	1.1 DJ	--	**500**
Benzo(a)anthracene	**120 D**	2.7 DJ	4.4 TDJ	4.8 D	1.3 DJ	0.7 DJ	**370 DTB**	3.1 DJB	**9.2 TDJ**	--	1.7 DJ	**35 D**	--	--	--	--	--	**11 D**	1 DJ	**30 D**	2.4 D	--	**5.6**
Benzo(b)fluoranthene	**120 D**	3.7 DJ	1.8 TDJ	**5.9 D**	2.4 D	0.92 DJ	**320 DT**	5.5 D, ID4	**14 TDJ**	--	2.7 D	**37 D**	--	--	--	--	--	**12 D**	1.2 DJ	**26 D**	3 D	--	**5.6**
Benzo(k)fluoranthene	**57 D**	1.2 DJ	0.66 TDJ	2.4 D	0.8 DJ	0.88 DJ	**160 DT**	ND	15 TDJ	--	0.89 DJ	17 D	--	--	--	--	--	5.8 DJ	0.58 DJ	12 D	0.98 DJ	--	**56**
Benzo(g,h,i)perylene	78 D	2.8 DJ	2.4 TDJ	3.4 D	1.7 DJ	0.69 DJ	180 DTB	3.4 DJB	7.5 TDJ	--	2 D	25 D	--	--	--	--	--	7.5 D	0.97 DJ	12 D	1.7 DJ	--	**500**
Benzo(a)pyrene	**110 D**	**2.9 DJ**	**3.6 TDJ**	**4.9 D**	**1.7 DJ**	0.83 DJ	**280 DT**	**3.2 DJ**	ND	--	**2.2 D**	**35 D**	--	--	--	--	--	**11 D**	0.93 DJ	**23 D**	**2.4 D**	--	**1**
Bis(2-ethylhexyl) phthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	--	--	--	--	--	ND	ND	ND	ND	--	**--**
Biphenyl	2.8 DJ	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	--	--	--	--	--	ND	ND	ND	ND	--	**--**
Carbazole	--	ND	ND	--	--	ND	--	--	ND	--	0.12 DJ	--	--	--	--	--	--	0.84 DJ	--	--	0.42 DJ	--	**--**
Chrysene	**99 D**	2.5 DJ	5.1 TDJ	4.5 D	1.2 DJ	1 DJ	**320 DT**	2.2 DJ	8.1 TDJ	--	1.7 DJ	31 D	--	--	--	--	--	9.1 D	1.1 DJB	26 BD	2.4 DJ	--	**56**
Dibenzo(a,h)anthracene	**20 D**	ND	**1 TDJ**	**0.89 DJ**	0.38 DJ	0.27 DJ	**58 TDJB**	**0.78 DJB**	ND	--	0.52 DJ	**6.6 DJ**	--	--	--	--	--	**1.9 DJ**	**2.1 D**	**11 D**	0.44 DJ	--	**0.56**
Dibenzofuran	23 D	ND	ND	ND	ND	ND	23 TDJ	ND	5.5 TDJ	--	ND	1.8 DJ	--	--	--	--	--	0.66 DJ	ND	ND	0.38 DJ	--	**350**
Fluoranthene	300 D	6.1 DJ	3.6 TDJ	11 D	2.8 D	0.91 DJ	**750 DT**	4.8 D	21 TDJ	--	3 D	77 D	--	--	--	--	--	25 D	1.1 DJ	60 D	5 D	--	**500**
Fluorene	39 D	ND	2.4 TDJ	0.19 DJ	ND	ND	49 TDJ	ND	23 TDJ	--	ND	3.3 DJ	--	--	--	--	--	1.5 DJ	ND	2.4 D	0.43 DJ	--	**500**
Indeno(1,2,3-cd)pyrene	**69 D**	2.1 DJ	1.2 TDJ	3.2 D	1.5 DJ	0.48 DJ	**170 DT**	2.7 DJ	**6.5 TDJ**	--	1.7 DJ	**23 D**	--	--	--	--	--	**6.7 D**	0.79 DJ	**12 D**	1.6 DJ	--	**5.6**
2-Methylnaphthalene	10 DJ	ND	ND	ND	ND	ND	5.2 TDJ	ND	8.4 TDJ	--	ND	ND	--	--	--	--	--	0.24 DJ	ND	ND	0.25 DJ	--	**--**
Naphthalene	31 D	ND	ND	ND	ND	ND	9.6 TDJ	ND	13 TDJ	--	ND	1.7 DJ	--	--	--	--	--	0.32 DJ	ND	ND	0.44 DJ	--	**500**
Phenanthrene	250 D	3.5 DJ	12 DT	4.5 D	1 DJ	0.35 DJ	480 DT	2.2 DJ	20 TDJ	--	1.4 DJ	42 D	--	--	--	--	--	13 D	0.58 DJ	26 D	4.1 D	--	**500**
Pyrene	210 D	4.6 DJ	12 DT	7.6 D	2 D	0.93 DJ	**570 DT**	5 D	15 TDJ	--	2.3 D	54 D	--	--	--	--	--	16 D	1 DJ	51 D	3.8 D	--	**500**
TOTAL SVOCs (mg/kg)	***1577***	*32.9*	*57.6*	*55.2*	*17.4*	*8.11*	***3958***	*33.5*	*176*	--	*20.8*	*405*	--	--	--	--	--	*128*	*11.6*	*304*	*31.5*	--	--
Polychlorinated Biphenyls (PCBs) - mg/kg																							
Aroclor 1242	0.068 QSU	0.015 QSU, J	ND	ND	ND	ND	--	--	ND	--	ND	--	ND	ND	ND	--	--	--	ND	--	--	ND	**--**
Aroclor 1248	ND	ND	ND	ND	ND	ND	--	--	0.24 QSU	--	ND	--	ND	ND	ND	--	--	--	ND	--	--	ND	**--**
Aroclor 1254	ND	ND	ND	ND	ND	ND	--	--	ND	--	ND	--	0.011 QSU, J	ND	0.04 QSU,D,J	--	--	--	ND	--	--	0.057	**--**
Aroclor 1260	0.13 QSU	0.063 QSU	ND	ND	0.13 J	ND	--	--	ND	--	ND	--	ND	ND	ND	--	--	--	0.063 QSU, J	--	--	ND	**--**
TOTAL PCBs (mg/kg)	*0.198*	*0.078*	*ND*	*ND*	*0.13*	*0*	--	--	*0.24*	--	*ND*	--	*0.011*	*0*	*0.043*	--	--	--	*0.063*	--	--	*0.057*	***1***
Inorganic Compounds - mg/kg																							
Aluminum	--	19100 J	33800 J	--	--	--	--	--	--	8260	--	--	--	--	--	--	--	--	--	--	--	--	**--**
Antimony	--	91.3 J	ND J	--	--	--	--	--	--	ND J	--	--	--	--	--	--	--	--	--	--	--	--	**--**
Arsenic, Total	**20.1 J**	**42.8 J**	3.1 J	**55.5 J**	**37.1 J**	**26.7**	**33.9**	**44.2**	11.8	**71.9**	15.4 J	4.7 J	--	--	--	--	--	**117 J**	**198 J**	--	14 J	--	**16**
Barium, Total	124 J	141 J	223 J	172 J	35.4 J	10.4	151	83.1	137	255 J	150 J	73.2 J	--	--	--	--	--	92.4 J	202	--	131	--	**400**
Beryllium	--	2.71 J	4.45 J	--	--	--	--	--	--	1.28	--	--	--	--	--	--	--	--	--	--	--	--	**590**
Cadmium, Total	4.06 J	1.86 J	ND J	2.65 J	1.13 J	0.914	2.92	2.53	2.55	0.533	1.49 J	1.31 J	--	--	--	--	--	0.886 J	**54.5**	--	0.983	--	**9.3**
Calcium	--	109000 D	250000 D	--	--	--	--	--	--	43300 D	--	--	--	--	--	--	--	--	--	--	--	--	**--**
Chromium, Total	93.4	73.2 J	3.57 J	122 J	67.4 J	26.3	13.4 J	78.1 J	52.2 J	87.8 J	671 J	95.6 J	--	--	--	--	--	63.5 J	29.2 J	--	235 J	--	**1,500**
Cobalt	--	13.1 J	1.38 J	--	--	--	--	--	--	3.21	--	--	--	--	--	--	--	--	--	--	--	--	**--**
Copper	--	**655 J**	5.7 J	--	--	--	--	--	--	65.4	--	--	--	--	--	--	--	--	--	--	--	--	**270**
Iron	--	135000 DJ	7570 J	--	--	--	--	--	--	32900 D	--	--	--	--	--	--	--	--	--	--	--	--	**--**
Lead, Total	603	0.62	6.9	235	162	543	605	485	365	127	148	463	--	--	--	--	--	92.9 J	301 J	--	107 J	--	**1,000**
Magnesium	--	16100 J	5080 J	--	--	--	--	--	--	5590 J	--	--	--	--	--	--	--	--	--	--	--	--	**--**
Manganese	--	3630 DJ	4390 DJ	--	--	--	--	--	--	3040 D	--	--	--	--	--	--	--	--	--	--	--	--	**10,000**
Mercury, Total	0.314 D	0.508	ND	0.104 D	0.0833 D	0.035	0.724	2.71 D	0.452 D	0.209 D	0.168	0.671	--	--	--	--	--	0.265 J	0.229	--	0.538	--	**2.8**
Nickel	--	157 J	ND J	--	--	--	--	--	--	12.8 J	--	--	--	--	--	--	--	--	--	--	--	--	**310**
Potassium	--	1880 J	4080 J	--	--	--	--	--	--	1640 J	--	--	--	--	--	--	--	--	--	--	--	--	**--**
Selenium	--	ND J	ND J	--	--	--	--	--	--	ND J	--	--	--	--	--	--	--	--	--	--	--	--	**1,500**
Silver	--	ND	ND	--	--	--	--	--	--	ND J	--	--	--	--	--	--	--	--	--	--	--	--	**8.3**
Sodium	--	512 J	998 J	--	--	--	--	--	--	206 J	--	--	--	--	--	--	--	--	--	--	--	--	**--**
Vanadium	--	24 J	12.8 J	--	--	--	--	--	--	68.6	--	--	--	--	--	--	--	--	--	--	--	--	**--**
Zinc	--	376 J	12.3 J	--	--	--	--	--	--	103	--	--	--	--	--	--	--	--	--	--	--	--	**10,000**
Cyanide, Total	1.2	1.1	ND	ND	--	--	--	--	ND J	--	--	--	--	--	--	--	--	--	--	--	--	--	**27**

Notes:
1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. SCO = Soil Cleanup Objective (Protection of Public Health - Commercial), per NYSDEC 6NYCRR Part 375-6.8(b), Final December 2006.

Color Code:
BOLD = Value exceeds Restricted-Commercial SCO (and Unrestricted SCO)

Definitions:
B = Analyte was detected in associated Method Blank.
D = Dilution required due to high concentration of target analyte, sample matrix effects, sample color, or sample viscosity.
ID4 = Benzo(b)fluoranthene coelutes with Benzo(k)fluoranthene. The reported result is a summation of the isomers and the concentration is based on the response factor of Benzo(b)fluoranthene.
J = Estimated value; result is less than the sample quantitation limit but greater than zero.
ND = parameter not detected above laboratory detection limit.
NJ = The detection is tentative in identification and estimated in value.
QSU = Sulfur (EPA 3660) clean-up performed on extract.
T = Sample had an adjusted final volume during extraction due to extract matrix and / or viscosity.
U = The analyte was analyzed for, but was not detected above the level of the associated reported quantitation limit.
ND J = The analyte was not detected. The associated reported quantitation limit is an estimate and may be inaccurate or imprecise.
W = Sample was prepared and analyzed utilizing a medium level extraction.
" -- " = Not analyzed for this parameter or no individual SCO.

TABLE 2

SUMMARY OF SUPPLEMENTAL METALS ANALYTICAL DATA
(FEBRUARY 2012)

SITE MANAGEMENT PLAN

Phase II Business Park
Lackawanna, New York

Original Sample ID	Supplemental Sample IDs [1]	Arsenic Result (ppm)	Lead Result (ppm)
BPA2-TP-10 (0-2)		**245 J**	345 J
	TP10R (0-2)	**360**	NA
	TP10N10 (0-2)	45.2	NA
	TP10S10 (0-2)	96.2	NA
	TP10E10 (0-2)	58	NA
	TP10W10 (0-2)	**131**	NA
	TP10W20 (0-2)	102	NA
BPA2-TP-21 (0-2)		**119 J**	120 J
	TP21R (0-2)	89.7	NA
	TP21N10 (0-1)	42.2	NA
	TP21S10 (0-2)	49.2	NA
	TP21E10 (0-2)	**167**	NA
	TP21E20 (0-2)	26.8	NA
	TP21W10 (0-2)	23.2	NA
BPA2-TP-40 (0-2)		**152 J**	656 J
	TP40R (0-2)	32.2	NA
	TP40N10 (0-1)	11.4	NA
	TP40S10 (0-2)	34.9	NA
	TP40E10 (0-1)	4.7	NA
	TP40W10 (0-2)	88.2	NA
BPA2-TP-52 (0-2)		**141**	456
	TP52R (0-2)	66	NA
	TP52N10 (0-2)	22.7	NA
	TP52S10 (0-2)	47.8	NA
	TP52E10 (0-2)	**164**	NA
	TP52W10 (0-2)	20.4	NA

TABLE 2

SUMMARY OF SUPPLEMENTAL METALS ANALYTICAL DATA (FEBRUARY 2012)

SITE MANAGEMENT PLAN

Phase II Business Park
Lackawanna, New York

Original Sample ID	Supplemental Sample IDs [1]	Arsenic Result (ppm)	Lead Result (ppm)
BPA2-TP-58 (0-2)		**122**	**12,300 DJ**
BLIND 4		*57 J*	*216 J*
	TP58R (0-2)	46.5	97.2
	TP58N10 (0-2)	23.2	207
	TP58S10 (0-2)	**127**	314
	TP58S20 (0-2)	112	NA
	TP58E10 (0-2)	31.5	175
	TP52W10 (0-2)	44.2	285
BPA2-TP-103 (0-2)		**198 J**	54.5
	TP103R (0-2)	29.2	NA
	TP103N10 (0-2)	NS	NA
	TP103S10 (0-2)	68.5	NA
	TP103E10 (0-2)	15.3	NA
	TP103W10 (0-2)	46.5	NA

Notes:

1. "R" designation refers to a re-sample collected adjacent to original test pit location to confirm 0-2' depth interval.

Acronyms:

NA = Not analyzed for parameter
NS = Not sampled
J = Estimated value
D = Analyzed at dilution

BOLD	= Value exceeds arsenic site-specific SCO of 120 ppm.
BOLD	= Value exceeds lead commerical SCO of 1,000 ppm.

TABLE 3

SUMMARY OF SUPPLEMENTAL SOIL/FILL ANALYTICAL DATA COMPARED TO COMMERCIAL USE SCOs

SITE MANAGEMENT PLAN

Phase II Business Park - Site II-1
Lackawanna, New York

Parameter [1]	Date, Sample Location, Depth Interval (fbgs)			Commercial SCOs[2,3] (mg/kg)
	3/1/13			
	BPAII-TP-106	BPAII-TP-107	BPAII-TP-108	
	0.0 - 2.0	0.0 - 2.0	0.0-2.0	
Semi-Volatile Organic Compounds (SVOCs) - mg/kg				
Acenaphthene	ND	0.44 J	0.45 J	**500**
Acenaphthylene	0.62 J	4.5	0.16 J	**500**
Anthracene	0.55	3 J	1.8 J	**500**
Benzo(a)anthracene	2.4 J	22	4.8	**5.6**
Benzo(b)fluoranthene	3.8 J	37	5.6	**5.6**
Benzo(k)fluoranthene	1.5 J	13	2.3	**56**
Benzo(g,h,i)perylene	0.89 J	7.5	1.1 J	**500**
Benzo(a)pyrene	2.7 J	26	3.6	**1**
Carbazole	ND	1 J	0.51	**--**
Chrysene	2.3 J	24	4.1	**56**
Dibenzo(a,h)anthracene	ND	2.3 J	ND	**1.1**
Dibenzofuran	ND	0.25 J	0.47 J	**--**
Fluoranthene	3.1 J	34	8.9	**500**
Fluorene	ND	0.81 J	0.51 J	**500**
Indeno(1,2,3-cd)pyrene	0.92 J	**7.6**	1.1 J	**5.6**
2-Methylnaphthalene	ND	0.37 J	0.25 J	**--**
Naphthalene	ND	0.53 J	0.29 J	**500**
Phenanthrene	0.94 J	6.9	6.1	**500**
Pyrene	*2.9 J*	32	5.7	**500**
TOTAL SVOCs (mg/kg)	*23*	*223*	*55*	**500**
Polychlorinated Biphenyls (PCBs) - mg/kg				
TOTAL PCBs (mg/kg)	*ND*	--	--	**1**
Inorganic Compounds - mg/kg				
Aluminum, Total	5730	--	--	**--**
Arsenic, Total	37.3	35.8	94.2	**16**
Barium, Total	80.3	--	--	**400**
Beryllium, Total	0.71	--	--	**590**
Cadmium, Total	5.3	0.83	2.8	**9**
Calcium, Total	25100	--	--	**--**
Chromium, Total	37.9	46.6	**813**	**400**
Cobalt, Total	5.2	--	--	**--**
Copper, Total	**51.6**	--	--	**270**
Iron, Total	32100	--	--	**--**
Lead, Total	316	57.6	374	**1,000**
Magnesium, Total	3550	--	--	**--**
Manganese, Total	1600	--	--	**10,000**
Mercury, Total	0.024	0.048	0.034	**3**
Nickel, Total	36	--	--	**310**
Potassium, Total	383 B	--	--	**--**
Silver, Total	0.7	--	--	**1,500**
Vanadium, Total	25.1	--	--	**--**
Zinc, Total	436	--	--	**10,000**
Cyanide, Total	1.9	--	--	**27**

Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. SCO = Soil Cleanup Objective (Protection of Public Health - Industrial, Commercial and Unrestricted), per NYSDEC 6NYCRR Part 375-6.8(b), Final December 2
3. Soil Clean up guidence for subsurface soil/fill at non-residential sites Per NYSDEC CP-51.

Definitions:

B = Analyte was detected in associated Method Blank.
J = Estimated value; result is less than the sample quantitation limit but greater than zero.
" -- " = Not analyzed for this parameter or no individual SCO.

Color Code:

BOLD = Value exceeds Part 375 Commercial Use Soil Cleanup Objectives.

TABLE 4

SUMMARY OF GROUNDWATER ANALYTICAL DATA

SITE MANAGEMENT PLAN

Phase II Business Park
Lackawanna, New York

PARAMETER [1]	GWQS [2]	MW-01		MW-07A [4]		MW-07B		MWN-63A		MWN-63D [3,4]		MWN-64A		MWN-65D		MWS-32A		MWS-36A		MWS-37A		Trip Blank		Equipment Blank 1 [4,6]		Equipment Blank 2 [4,6]		Blind Dup[3]		BPA2-TP-36	BPA2-TP-81B
Field Measurements [5]**:**																															
Sample No.	--	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	NA	NA	NA	NA	NA	NA	1	2	NA	NA
pH (units)	**6.5 - 8.5**	**9.20**	**9.28**	7.19	7.19	6.75	6.81	6.65	6.67	**6.28**	6.52	7.84	7.82	6.54	6.63	8.39	8.15	7.90	7.88	7.06	7.26	NA	NA	NA	NA	NA	NA	**6.28**	6.52	NA	NA
Temperature (^{o}C)	**NA**	12.3	13.5	11.4	12.3	12.7	13.1	11.0	12.2	11.7	12.7	11.4	12.4	12.5	13.3	11.4	12.8	10.5	10.7	11.5	12.2	NA	NA	NA	NA	NA	NA	11.7	12.7	NA	NA
Sp. Conductance (uS)	**NA**	435.0	433.3	596.1	591.0	889.7	890.9	1150	1141	1410	1402	635.9	632.3	1712	1707	325.4	336.4	872.1	869	805.5	708.7	NA	NA	NA	NA	NA	NA	1410	1402	NA	NA
Turbidity (NTU)	**NA**	12.9	10.2	7.12	7.14	33.6	24.1	480.0	252.0	36.2	23.0	140	107	48.0	68.0	40.7	10.0	32.6	17.3	>1000	651	NA	NA	NA	NA	NA	NA	36.2	23.0	NA	NA
Eh (mV)	**NA**	-113	-119	29	46	-51	-55	-81	-93	41	28	-113	-119	25	29	-93	-127	-19	-14	41	-43	NA	NA	NA	NA	NA	NA	41	28	NA	NA
Total Inorganic Compounds (mg/L):																															
Aluminum - Total	**--**	ND		ND		ND		ND		0.878		ND		ND		ND		ND		ND		NA		ND		ND		0.82		NA	NA
Arsenic - Total	**0.025**	**0.491**		**0.0319**		ND		ND		ND		ND		ND		**0.0323**		ND		**0.0795**		NA		ND		ND		ND		NA	NA
Barium - Total	**1**	0.0222		0.014		0.0643		0.206		0.87		0.043		0.388		0.0173		0.0407		0.226		NA		ND		ND		0.893		NA	NA
Cadmium - Total	**0.005**	ND		ND		ND		ND		ND		ND		ND		ND		ND		0.001		NA		ND		ND		ND		NA	NA
Calcium - Total	**--**	ND		106		ND		ND		167		ND		ND		ND		ND		ND		NA		ND		ND		170		NA	NA
Chromium - Total	**0.05**	ND		ND		ND		0.006		ND		ND		ND		ND		ND		0.0477		NA		ND		ND		ND		NA	NA
Iron - Total	**0.3**	ND		0.1		ND		ND		1.43		ND		ND		ND		ND		ND		NA		ND		ND		1.44		NA	NA
Lead - Total	**0.025**	ND		ND		ND		0.005		ND		ND		ND		ND		ND		0.038		NA		ND		ND		ND		NA	NA
Magnesium - Total	**35***	ND		12.7		ND		ND		58.2		ND		ND		ND		ND		ND		NA		ND		ND		58.9		NA	NA
Manganese - Total	**0.3**	ND		0.00101		ND		ND		0.105		ND		ND		ND		ND		ND		NA		ND		ND		0.107		NA	NA
Potassium - Total	**--**	ND		2.54		ND		ND		15.2		ND		ND		ND		ND		ND		NA		ND		ND		15.6		NA	NA
Sodium - Total	**20**	ND		9.6		ND		ND		91.4		ND		ND		ND		ND		ND		NA		ND		ND		91.7		NA	NA
Soluble Inorganic Compounds (mg/L):																															
Arsenic -Soluble	**0.025**	NA		NA		NA		ND		NA		ND		NA		NA		NA		0.0177		NA		ND		ND		NA		NA	NA
Barium - Soluble	**1**	NA		NA		NA		0.133		NA		0.0293		NA		NA		NA		0.0625		NA		ND		ND		NA		NA	NA
Volatile Organic Compounds (ug/L):																															
1,2,4-Trimethylbenzene	**5**	ND		ND		ND		ND		1.8		ND		1.6		ND		ND		ND		ND		ND		ND		2.1		NA	ND
1,3,5 - Trimethylbenzene	**5**	ND		ND		ND		ND		ND		ND		0.48		ND		ND		ND		ND		ND		ND		0.79 J		NA	ND
Benzene	**1**	0.58 B		ND		ND		ND		ND		ND		0.31 B		ND		ND		ND		ND		ND		ND		ND		NA	ND
sec-Butylbenzene	**5**	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		NA	ND
Bromomethane	**5**	ND		0.79 J		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		1.3		NA	ND
Cyclohexane	**--**	ND		ND		ND		ND		3.3		ND		ND		ND		ND		ND		ND		ND		ND		3.8		NA	ND
Ethylbenzene	**5**	ND		ND		ND		ND		ND		ND		0.25		ND		ND		ND		ND		ND		ND		ND		NA	ND
Methyl-t-Butyl Ether (MTBE)	**10**	ND		ND		ND		ND		ND		ND		0.72		ND		ND		ND		ND		ND		ND		ND		NA	ND
Methylcyclohexane	**--**	ND		ND		ND		ND		8.8		ND		ND		ND		ND		ND		ND		ND		ND		9.6		NA	ND
p-Cymene	**5**	ND		ND		ND		ND		ND		ND		ND		ND		0.14 J		ND		ND		ND		ND		ND		NA	ND
m-Xylene & p-Xylene	**10**	ND		ND		ND		ND		1 J		ND		1.6		ND		0.063 J		0.069 J		ND		ND		ND		1.1 J		NA	0.055 J
o-Xylene	**5**	ND		ND		ND		ND		ND		ND		0.67		ND		ND		ND		ND		ND		ND		ND		NA	ND
n-Butylbenzene	**5**	ND		ND		ND		ND		ND		ND		0.31 J		ND		ND		ND		ND		ND		ND		ND		NA	ND
Toluene	**5**	ND		ND		ND		ND		ND		ND		1.6 B		ND		ND		ND		ND		ND		ND		ND		NA	ND
Xylenes, total	**15**	ND		ND		ND		ND		1 J		ND		2.3		ND		0.063 J		0.069 J		ND		ND		ND		1.1 J		NA	0.055 J
Semi-Volatile Organic Compounds (ug/L):																															
Acenaphthene	**20***	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		NA		ND		ND		ND		5 D10, J	ND
Anthracene	**50***	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		NA		ND		ND		ND		6.2 D10, J	1.5 D10, J
Benzo(a)anthracene	**0.002***	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		NA		ND		ND		ND		**13 D10, J**	**5.5 D10, J**
Benzo(a)pyrene	**ND**	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		NA		ND		ND		ND		**13 D10, J**	**5.5 D10, J**
Benzo(b)fluoranthene	**0.002***	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		NA		ND		ND		ND		**23 D10, J**	**8.2 D10, J**
Benzo(ghi)perylene	--	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		NA		ND		ND		ND		11 D10, J	4.2 D10, J
Benzo(k)fluoranthene	**0.002***	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		NA		ND		ND		ND		**7.3 D10, J**	ND
Carbazole	**--**	0.43 J		ND		ND		ND		ND		ND		ND		ND		ND		ND		NA		ND		ND		ND		7.5 D10, J	ND
Chrysene	**0.002**	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		NA		ND		ND		ND		**14 D10, J**	**5 D10, J**
Fluoranthene	**50***	0.52 J		ND		ND		ND		ND		ND		ND		ND		ND		ND		NA		ND		ND		ND		23 D10, J	12 D10, J
Indeno(1,2,3-cd)pyrene	**0.002***	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		NA		ND		ND		ND		**9.3 D10, J**	**3.6 D10, J**
Phenanthrene	**50***	1 J		ND		ND		ND		ND		ND		ND		ND		0.67 J		ND		NA		ND		ND		ND		21 D10, J	6.7 D10, J
Pyrene	**50***	0.49 J		ND		ND		ND		ND		0.35 J		ND		ND		ND		ND		NA		ND		ND		ND		19 D10, J	9.1 D10, J

TABLE 4

SUMMARY OF GROUNDWATER ANALYTICAL DATA

SITE MANAGEMENT PLAN

Phase II Business Park
Lackawanna, New York

PARAMETER [1]	GWQS [2]	MW-01	MW-07A [4]	MW-07B	MWN-63A	MWN-63D [3,4]	MWN-64A	MWN-65D	MWS-32A	MWS-36A	MWS-37A	Trip Blank	Equipment Blank 1 [4,6]	Equipment Blank 2 [4,6]	Blind Dup[3]	BPA2-TP-36	BPA2-TP-81B
Polychlorinated Biphenyls (ug/L):																	
Aroclor 1242	**0.09****	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	**0.56**

Notes:
1. Only those compounds detected above the method detection limit at a minimum of one sample location are reported in this table.
2. NYSDEC Class "GA" Groundwater Quality Standards/Guidance Values (GWQS/GV) as per Technical & Operational Guidance Series 1.1.1 (June 1998, January 1999 Errata, April 2000 Addendum, and June 2004 Addendum).
3. Blind Duplicate and Matrix Spike/Matrix SpikeDuplicate (MS/MSD) analysis performed on groundwater sample collected from MWN-63D.
4. MW-7A, MWN-63D, EQB-1 and EQB-2 were sampled for expanded parmeters for 8260 TCL + STARS VOCs, TAL Metals, Total Cyanide, 8270 TCL SVOCs.
5. Field measurements were collected immediately before and after groundwater sample collection.
6. EQB-1 was collected on 4/29/10 and EQB-2 was collected on 4/30/10.

Definitions:
J = Estimated Value; result is less than the sample quantitation limit but greater than zero.
B = Analyte was detecded in the associated method blank.
"--" or NA = Not available
ND = Indicates parameter was not detected above laboratory reporting limit.
D10 = Dilution required due to sample color.

* = Guidance Value
** = Applies to the sum of PCB Aroclors.
BOLD = Result exceeds the GWQS/GV.

TABLE 5

SUMMARY OF PLANNED AND COMPLETED REMEDIAL ACTIONS BY SITE

SITE MANAGEMENT PLAN

Phase II Business Park
Lackawanna, New York

Site No.	BCP Site No.	Acreage	Remedial Work [1,3]	Monitoring Wells	Piezometers	Post-Remedial Groundwater Monitoring Program [2]
No Remedial Actions Planned						
II-1	C915198	14.36	No areas of impact identified; former location of the NDS lumberyard relocated to Site III-1.	MWS-32A	None	TBD
II-6	C915198F	11.5	No areas of impact identified.	MW-07A/B	None	TBD
II-7	C915198G	12.23	No areas of impact identified.	None	None	TBD
II-9	C915198I	11.98	No additional areas of impact identified.	None	None	TBD
Remedial Actions Planned						
II-2	C915198B	9.43	Hotspot I (test pit BPA2-TP-16): direct injection of a fast-acting chemical oxidant and a slow release product to stimulate aerobic bioremediation. Delivery points will be equally spaced in a grid pattern across the approximate 30-foot by 30-foot area. The product will be delivered via high-capacity hydraulic injection pump between 5 and 9 fbgs (i.e., the smear zone). Hotspot O (test pit BPA2-TP-103): excavation and off-site disposal of an estimated 45 cubic yards of arsenic-impacted soil/fill.	MWS-37A	None	TBD
II-3	C915198C	23.53	Hotspot J (test pit BPA2-TP-10): excavation and off-site disposal of an estimated 70 cubic yards of arsenic-impacted soil/fill.	MWS-36A	None	TBD
II-4	C915198D	1.40	South Linde Area: Construct 6-inch recovery well at PZ-2 and operate belt skimmer for continuous oil removal. Continue operation and monitoring groundwater collection, treatment, and oil recovery system.	MW-01, -03, -05, MWN-65D	None	TBD
II-5	C915198E	6.49	Hotspot H (test pits BPA2-TP-99 and -99B): direct injection of a fast-acting chemical oxidant and a slow release product to stimulate aerobic bioremediation. Delivery points will be equally spaced in a grid pattern across the approximate 120-foot by 50-foot area. The product will be delivered via high-capacity hydraulic injection pump between 5 and 9 fbgs (i.e., the smear zone). Hotspot K (test pit BPA2-TP-21): excavation and off-site disposal of an estimated 70 cubic yards of arsenic-impacted soil/fill.	None	None	TBD
II-11	C915198K	11.97	Hotspot C (test pit BPA2-TP-53): excavation of an estimated 360 CY of petroleum-impacted soil/fill followed by on-site bioremediation; groundwater management may be required. Hotspot M (test pit BPA2-TP-52): excavation and off-site disposal of an estimated 70 cubic yards of arsenic-impacted soil/fill. Hotspot N (test pit BPA2-TP-58): excavation and off-site disposal of an estimated 70 cubic yards of arsenic-impacted soil/fill.	None	None	TBD
II-10	C915198J	15.79	Hotspot A (test pit BPA2-TP-85): excavation of an estimated 45 CY of PAH-impacted soil/fill followed by on-site bioremediation. Hotspot D (test pit BPA2-TP-89): excavation of an estimated 2,250 CY of petroleum-impacted soil/fill followed by on-site bioremediation; groundwater management may be required. Hotspot G (test pit BPA2-TP-81B): direct injection of a fast-acting chemical oxidant and a slow release product to stimulate aerobic bioremediation. Delivery points will be equally spaced in a grid pattern across the approximate 20-foot by 20-foot area. The product will be delivered via high-capacity hydraulic injection pump between 5 and 9 fbgs (i.e., the smear zone).	MWN-63A/D	None	TBD

TABLE 5

SUMMARY OF PLANNED AND COMPLETED REMEDIAL ACTIONS BY SITE

SITE MANAGEMENT PLAN

Phase II Business Park
Lackawanna, New York

Site No.	BCP Site No.	Acreage	Remedial Work [1,3]	Monitoring Wells	Piezometers	Post-Remedial Groundwater Monitoring Program [2]
Remedial Actions Planned						
II-12	C915198L	12.08	Hotspot B (test pit BPA2-TP-80): excavation of an estimated 45 CY of PAH-impacted soil/fill followed by on-site bioremediation. Hotspot E (test pit BPA2-TP-93): excavation of an estimated 940 CY of petroleum-impacted soil/fill followed by on-site bioremediation; groundwater management may be required. Hotspot F (test pit BPA2-TP-95): excavation of an estimated 675 CY of petroleum-impacted soil/fill followed by on-site bioremediation; groundwater management may be required.	MWN-64A	None	TBD
Completed Remedial Actions						
II-3	C915198C	(see above)	Excavated arsenic-impacted soil/fill from test pits RR-TP-4 and RR-TP-12 as part of the Railroad Realignment IRM and disposed 739.78 tons at Chautauqua County Landfill, Jamestown, NY under active CCLF Permit No. CC1201.10S1.	Refer to Site II-3 above		
II-8	C915198H	11.41	Excavated arsenic-impacted soil/fill from Hotspot L (test pit BPA2-TP-40) and disposed 49.9 tons at Chautauqua County Landfill, Jamestown, NY under active CCLF Permit No. CC1201.10S1.	None	None	TBD
II-9	C915198I	(see above)	Excavated PCB-impacted soil/fill from test pit RR-TP-30 as part of the Railroad Realignment IRM and disposed 258.27 tons at Chautauqua County Landfill, Jamestown, NY under active CCLF Permit No. CC1201.10S1.	Refer to Site II-9 above		
II-10	C915198J	(see above)	Excavated arsenic-impacted soil/fill from test pit RR-TP-42 as part of the Railroad Realignment IRM and disposed 541.77 tons at Chautauqua County Landfill, Jamestown, NY under active CCLF Permit No. CC1201.10S1.	Refer to Site II-10 above		
TOTAL PHASE II ACREAGE =		**142.17**				

Notes:

1. All Sites to receive a minimum 1 foot of NYSDEC-approved clean cover material or 6 inches structural cover (pavement, building, etc.) in addition to listed remedial work.
2. TBD - To be determined pending implementation of final remedial measures.

FIGURES

F:\CAD\TurnKey\Tecumseh Redevelopment\Brownfield Cleanup Program (BCP)\Phase II Parcel\Site Management Plan\Figure 1; Site Location and Vicinity Map.dwg

FIGURE 1

TurnKey Environmental Restoration, LLC

2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0635

SITE LOCATION AND VICINITY MAP

SITE MANAGEMENT PLAN

PHASE II BUSINESS PARK
LACKAWANNA, NEW YORK

PROJECT NO.:	0071-012-322
DATE:	JULY 2012
DRAFTED BY:	HAA

P:\CAD\Turnkey\Tecumseh Redevelopment\Brownfield Cleanup Program (BCP)\Phase II Permit\Site Management Plan\Figure 2 - Site Plan.dwg

N

STEEL WINDS I
± 29.01 ACRES

PHASE IA BUSINESS PARK
± 12.92 ACRES

PHASE I BUSINESS PARK
± 101.85 ACRES

PHASE III BUSINESS PARK
± 150.18 ACRES

PHASE II BUSINESS PARK
± 142.17 ACRES

U.S.A.C.E.
SEDIMENT DISPOSAL AREA

GATEWAY TRADE
CENTER (G.T.C.)

SOUTH BUFFALO
RAILROAD COMPANY

BUFFALO
SPECIALTY
STEEL

REPUBLIC ENGINEERED
PRODUCTS, INC.
(BAR MILL)

SOUTH BUFFALO
RAILROAD COMPANY

BUFFALO CRUSHED STONE

LAKE ERIE

OPEN WATER

LAND

BUFFALO
OUTER HARBOR

SMOKES CREEK

GATEWAY METROPORT SHIP CANAL

U.S. HARBOR LINE BOUNDARY

TOWN OF HAMBURG
CITY OF LACKAWANNA

CITY OF LACKAWANNA
CITY OF BUFFALO

VILLAGE OF BLASDELL
CITY OF LACKAWANNA

WT-01 WT-02 WT-03 WT-04 WT-05 WT-06 WT-07 WT-08

LEGEND:

- TECUMSEH PROPERTY BOUNDARY
- EXISTING BUILDING / STRUCTURE
- RAILROAD TRACK
- SWMU P-07 — APPROXIMATE LOCATION OF SOLID WASTE MANAGEMENT UNIT (SWMU) - REQUIRES FURTHER ASSESSMENT
- SWMU P-64 — APPROXIMATE LOCATION OF SOLID WASTE MANAGEMENT UNIT (SWMU) - REQUIRES NO FURTHER ACTION
- CMS SITE BOUNDARY
- BROWNFIELD CLEANUP PROGRAM AREAS
- APPROXIMATE BOUNDARY OF SWMU
- WT-08 — EXISTING STEEL WINDS I FACILITY WIND TURBINE (WT)

500' 0' 500' 1000'

SCALE: 1 INCH = 500 FEET
SCALE IN FEET
(approximate)

TURNKEY ENVIRONMENTAL RESTORATION, LLC
2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0635

JOB NO.: 0071-012-322

REVISIONS

NO.	BY	DATE	REMARKS

SEAL

DRAWN BY: BCH (REV. JCT)
DATE: MAY 2012
CHECKED BY:
APPROVED BY:

DISCLAIMER:
PROPERTY OF BENCHMARK EES, PLLC. IMPORTANT: THIS MAP IS PROVIDED FOR USE WITH OUR ASSISTANCE AND AS SUCH IS SUBJECT TO RECALL AT ANY TIME. INFORMATION CONTAINED HEREON IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM FOR THE BENEFIT OF PARTIES OTHER THAN THOSE FOR WHOM IT WAS PREPARED WITHOUT THE WRITTEN CONSENT OF BENCHMARK EES, PLLC.

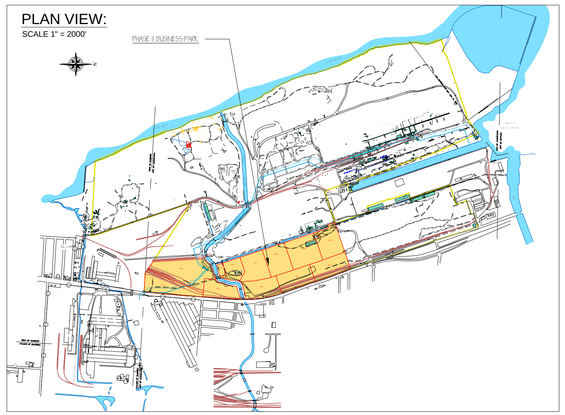
SITE PLAN

SITE MANAGEMENT PLAN
PHASE II BUSINESS PARK
LACKAWANNA, NEW YORK

FIGURE 2

F:\CAD\Turnkey\Tecumseh Redevelopment\Brownfield Cleanup Program (BCP)\Phase II Parcel\Site Management Plan\Figure 3 - Site Delineation Map.dwg

PLAN VIEW:
SCALE 1" = 2000'



SMOKES CREEK
SOUTH RETTEN WATER COURSE
SMOKES CREEK
HIGHWAY
FULL DEPTH CRACKS
LAKE SHORE ROAD - SR 5
LINCOLN AVE.
ADAMS ST.
MADISON AVE.
2nd STREET
PONA STREET
ODELL STREET
RICHBROOK STREET
WQCS # 5A
SEPTIC TANK
DOSING TANK
SAND FILTER
UV DISINFECTION
DISCHARGE
WATER METER
PUMP HOUSE
SEPTIC

F:\CAD\Turnkey\Tecumseh Redevelopment\Brownfield Cleanup Program (BCP)\Phase II Permit\Site Management Plan\Figure 4 - Isopotential Map.dwg

SOUTH BUFFALO
RAILROAD COMPANY

SMOKES CREEK

SOUTHERN WATER TRENCH

PHASE II BUSINESS PARK

II-1
II-2
II-3
II-5
II-6
II-7
II-8
II-9
II-10
II-11
II-12

577
576
578
575
574

MWN-24A
MWN-24B
MWS-03
MWS-04
MWS - 35A
MWS-31A
MWS - 34A
MWN - 59A
MWN-61A
MWN - 57A
MWN-10
MWN - 56A
P-50S
MW-17A
MWN-62A
P-46S
P-47S
P-48S
P-49S
MWS - 33A
MWS - 30A
MWN - 58A
P-39S
P-38S
MWN - 60A
P-40S
P-41S
MW-05
MW-01
MW-04
MW-03
MWS-36A
MW-18A
MWN-63A
MWN-63D
MWS-32A
MWS-37A
MW-07B
MW-07A

LINCOLN AVE.
ADAMS ST.
MADISON AVE.
2nd STREET
DONA STREET
HOLBROOK STREET
CHILD STREET
LAKE SHORE ROAD - SR 5
HIGHWAY

LEGEND:

- TECUMSEH PROPERTY BOUNDARY
- EXISTING BUILDING / STRUCTURE
- PHASE II BUSINESS PARK BOUNDARY (+/- 174 ACRES)
- MWN-25A — EXISTING OVERBURDEN MONITORING WELL
- MW-7B — EXISTING BEDROCK MONITORING WELL
- P-40S — EXISTING OVERBURDEN PIEZOMETER
- MWN-56A — PHASE III BUSINESS PARK DOWNGRADIENT OVERBURDEN MONITORING WELL
- MWS-63A — PHASE II BUSINESS PARK OVERBURDEN MONITORING WELL (5)
- MWS-63D — PHASE II BUSINESS PARK BEDROCK MONITORING WELL (2)
- 578 — GROUNDWATER CONTOUR
- GROUNDWATER FLOW DIRECTION

N

200' 0' 200' 400'

SCALE IN FEET
(approximate)

TURNKEY ENVIRONMENTAL RESTORATION, LLC
2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0635

JOB NO.: 0071-012-322

REVISIONS

NO.	BY	DATE	REMARKS

DRAWN BY: BCH
DATE: OCTOBER 2010
CHECKED BY:
APPROVED BY:

DISCLAIMER:
PROPERTY OF BENCHMARK EES, PLLC. IMPORTANT: TESTS, PLANS, DATA, AND DRAWINGS PREPARED FOR THIS ASSISTANCE AND AS SUCH IS SUBJECT TO RECALL AT ANY TIME. INFORMATION CONTAINED HEREON IS NOT TO BE USED BY ANYONE FOR PURPOSES OTHER THAN THOSE FOR WHICH IT WAS PREPARED OR FURNISHED, OR FOR FORM FOR THE BENEFIT OF PARTIES OTHER THAN THOSE FOR WHOM IT WAS PREPARED OR FURNISHED, WITHOUT THE WRITTEN CONSENT OF BENCHMARK EES, PLLC.

SEAL

SHALLOW GROUNDWATER ISOPOTENTIAL MAP FOR 04/29/10 & 04/30/10

SITE MANAGEMENT PLAN
PHASE II BUSINESS PARK
LACKAWANNA, NEW YORK

FIGURE 4

F:\GIS\Turnkey\Tecumseh Redevelopment\Remedial Closeout Program (RCP)\Phase II Parcel\Site Management Plan\Figure 5 Remedial Measures - REVISED.mxd

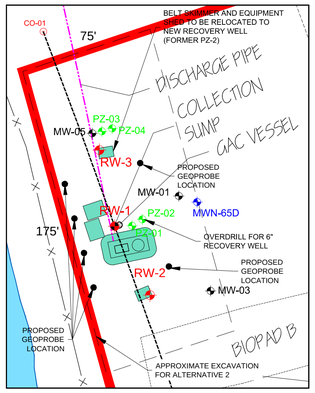
LEGEND:

- TECUMSEH PROPERTY BOUNDARY
- EXISTING BUILDING / STRUCTURE
- PHASE II BUSINESS PARK BOUNDARY (+/- 174 ACRES)
- RAILROAD TRACK
- MWN-25A — OVERBURDEN MONITORING WELL
- MW-7B — BEDROCK MONITORING WELL
- P-46S — OVERBURDEN PIEZOMETER
- MWS-65A — EXISTING PHASE II BUSINESS PARK OVERBURDEN MONITORING WELL (5)
- MWS-65D — EXISTING PHASE II BUSINESS PARK BEDROCK MONITORING WELL (2)
- COMPLETED REMEDIAL EXCAVATIONS
- HOT SPOT AREAS TO BE EXCAVATED

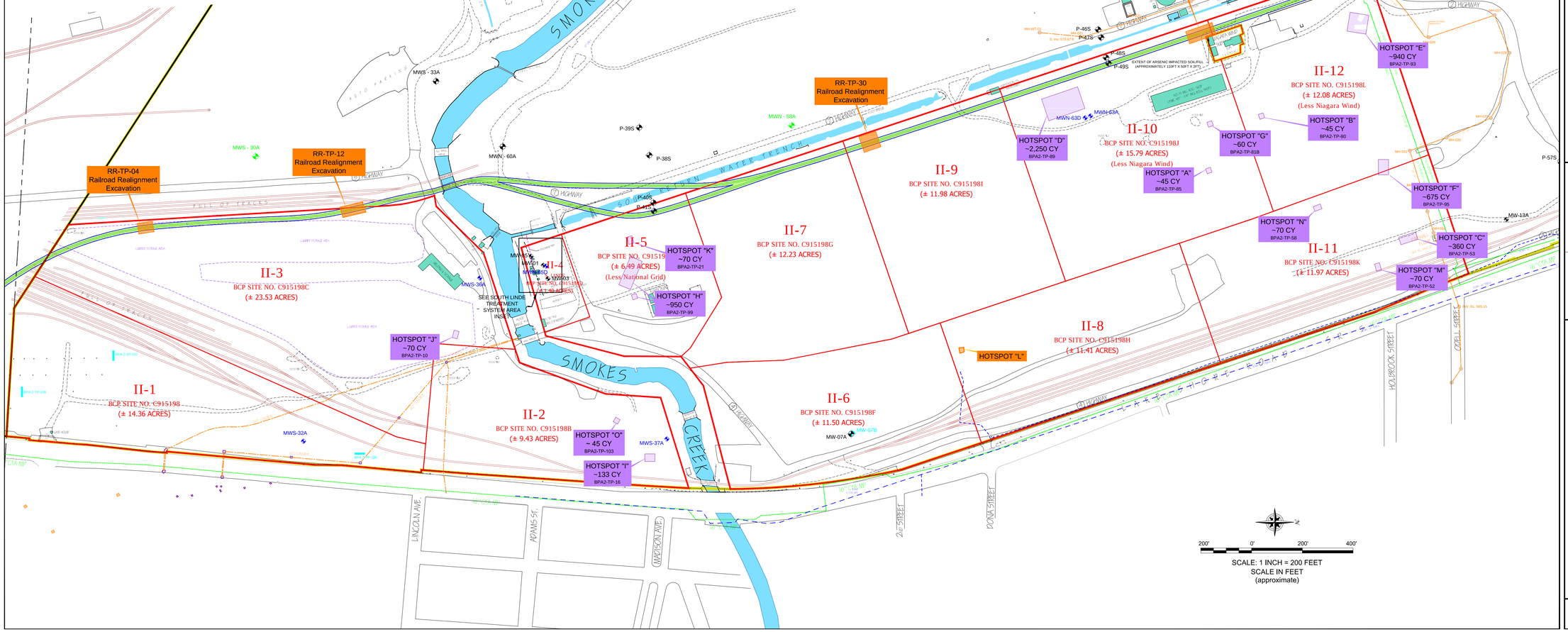
NOTES:

1. Building locations are based on historical surveys and maps, all locations should be considered approximate.

SOUTH LINDE TREATMENT SYSTEM AREA

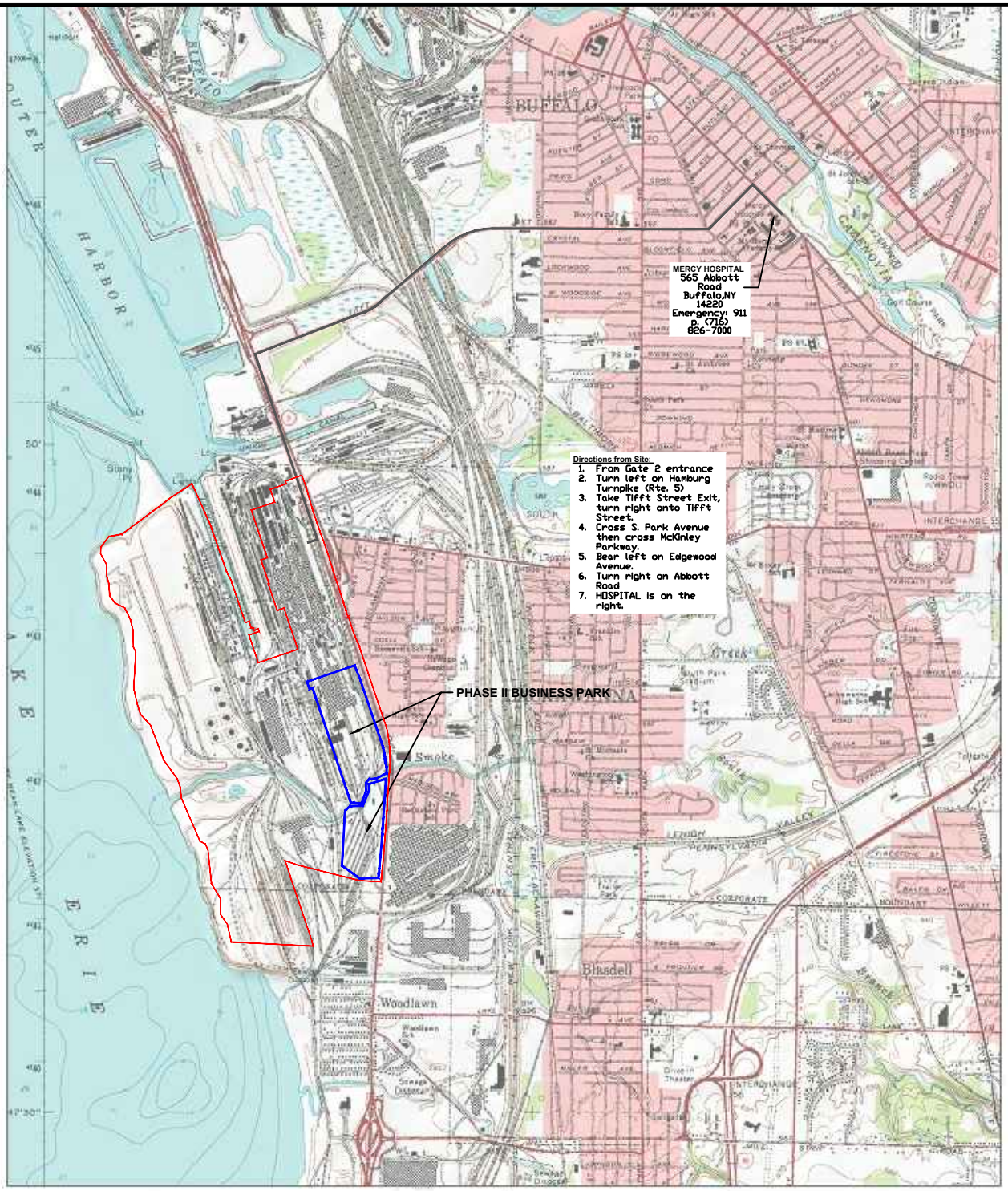


SCALE: 1 INCH = 40 FEET
SCALE IN FEET
(approximate)


SMOKES CREEK
MWS-20A
MWS-20B
P-36S
MWN-44A
MWN-24A
MWN-24B
MWS-03
MWN-62D
MWN-61A
MWN-10
MWN - 57A
MWN-55A
MWN-47A
MWN-45A
MWN-46A
P-18S
MWN - 56A
P-50S
MW-17A
MWN-64A
MWN - 59A
RR-TP-42 Railroad Realignment Excavation
P-46S
P-47S
P-48S
P-49S
EXTENT OF ARSENIC IMPACTED SOIL/FILL (APPROXIMATELY 110FT X 50FT X 2FT)
HOTSPOT "E" ~940 CY BPA2-TP-93
II-12
BCP SITE NO. C915198L
(± 12.08 ACRES)
(Less Niagara Wind)
MWS - 33A
RR-TP-30 Railroad Realignment Excavation
MWN - 58A
P-39S
P-38S
MWN- 60A
MWS - 30A
RR-TP-04 Railroad Realignment Excavation
RR-TP-12 Railroad Realignment Excavation
MWN-63D
MWN-63A
HOTSPOT "D" ~2,250 CY BPA2-TP-89
II-10
BCP SITE NO. C915198J
(± 15.79 ACRES)
(Less Niagara Wind)
HOTSPOT "B" ~45 CY BPA2-TP-80
HOTSPOT "C" ~60 CY BPA2-TP-81B
HOTSPOT "A" ~45 CY BPA2-TP-85
II-9
BCP SITE NO. C915198I
(± 11.98 ACRES)
P-40S
P-41S
P-57S
HOTSPOT "F" ~675 CY BPA2-TP-95
MW-13A
HOTSPOT "N" ~70 CY BPA2-TP-58
II-11
BCP SITE NO. C915198K
(± 11.97 ACRES)
HOTSPOT "C" ~360 CY BPA2-TP-53
HOTSPOT "M" ~70 CY BPA2-TP-52
II-3
BCP SITE NO. C915198C
(± 23.53 ACRES)
II-4
BCP SITE NO. C915198D
(± 1.40 ACRES)
MWS-01
MWS-02
MW-02
MW-03
MWS-36A
SEE SOUTH LINDE TREATMENT SYSTEM AREA INSET
II-5
BCP SITE NO. C915198E
(± 6.49 ACRES)
(Less National Grid)
HOTSPOT "K" ~70 CY BPA2-TP-21
HOTSPOT "H" ~950 CY BPA2-TP-99
II-7
BCP SITE NO. C915198G
(± 12.23 ACRES)
II-8
BCP SITE NO. C915198H
(± 11.41 ACRES)
HOTSPOT "L"
HOTSPOT "J" ~70 CY BPA2-TP-10
II-1
BCP SITE NO. C915198
(± 14.36 ACRES)
II-2
BCP SITE NO. C915198B
(± 9.43 ACRES)
HOTSPOT "O" ~ 45 CY BPA2-TP-103
HOTSPOT "I" ~133 CY BPA2-TP-18
MWS-32A
MWS-37A
MW-07A
MW-07B
II-6
BCP SITE NO. C915198F
(± 11.50 ACRES)
SMOKES CREEK
LINCOLN AVE.
ADAMS ST.
MADISON AVE.
24th STREET
DONA STREET
HOLBROOK STREET
OPAL STREET
16" CIA. NP
12" CIA. NP
8" CIA. NP
WOCS #5A
WOCS #5B
WOCS #6
WOCS #7
WOCS #8
WOCS #9
WOCS #10
WOCS #11
WOCS #12
WOCS #13
WOCS #14
WOCS #15
WOCS #16
WOCS #17
WOCS #18
WOCS #19
WOCS #20
WOCS #21
WOCS #22
WOCS #23
WOCS #24
WOCS #25
WOCS

F:\CAD\TurnKey\Tecumseh Redevelopment\Brownfield Cleanup Program (BCP)\Phase II Parcel\Site Management Plan\Figure 6; Hospital Route Plan.dwg

FIGURE 6



TurnKey Environmental Restoration, LLC

2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0635

PROJECT NO.: 0071-012-322

DATE: JULY 2012

DRAFTED BY: HAA

HOSPITAL ROUTE MAP

SITE MANAGEMENT PLAN

PHASE II BUSINESS PARK
LACKAWANNA, NEW YORK

APPENDIX A

METES AND BOUNDS / ENVIRONMENTAL EASEMENT

ENGINEERING / INSTITUTIONAL CONTROLS

- COVER SYSTEM THE COVER SYSTEM IS A PERMANENT CONTROL. PROCEDURES FOR THE INSPECTION AND MAINTENANCE OF THIS COVER ARE PROVIDED IN THE MONITORING PLAN IN SECTION 4 OF THE SITE MANAGEMENT PLAN (SMP).
- COMPLIANCE WITH THE ENVIRONMENTAL EASEMENT AND THE SMP BY THE GRANTOR AND THE GRANTOR'S SUCCESSORS AND ASSIGNS;
- ALL ENGINEERING CONTROLS MUST BE OPERATED AND MAINTAINED AS SPECIFIED IN THE SMP;
- ALL ENGINEERING CONTROLS ON THE CONTROLLED PROPERTY MUST BE INSPECTED AT A FREQUENCY AND IN A MANNER DEFINED IN THE SMP;
- GROUNDWATER, SOIL VAPOR AND OTHER ENVIRONMENTAL OR PUBLIC HEALTH MONITORING MUST BE PERFORMED AS DEFINED IN THE SMP;
- DATA AND INFORMATION PERTINENT TO SITE MANAGEMENT OF THE CONTROLLED PROPERTY MUST BE REPORTED AT THE FREQUENCY AND IN A MANNER DEFINED IN THE SMP;
- THE USE AND DEVELOPMENT OF THE SITE IS LIMITED TO COMMERCIAL AND INDUSTRIAL USES ONLY AS DESCRIBED IN 6NYCRR PART 375-1.8(G) (2) (III) & (IV).
- THE PROPERTY MAY NOT BE USED FOR A HIGHER LEVEL OF USE, SUCH AS RESTRICTED RESIDENTIAL USE WITHOUT ADDITIONAL REMEDIATION AND AMENDMENT OF THE ENVIRONMENTAL EASEMENT AS APPROVED BY THE NYSDEC;
- ALL FUTURE ACTIVITIES ON THE PROPERTY THAT WILL DISTURB REMAINING CONTAMINATED MATERIAL MUST BE CONDUCTED IN ACCORDANCE WITH THE SMP;
- THE USE OF THE GROUNDWATER UNDERLYING THE PROPERTY IS PROHIBITED WITHOUT TREATMENT RENDERING IT SAFE FOR INTENDED USE;
- THE SITE OWNER OR REMEDIAL PARTY WILL SUBMIT TO NYSDEC A WRITTEN STATEMENT THAT CERTIFIES, UNDER PENALTY OF PERJURY, THAT: (1) CONTROLS EMPLOYED AT THE CONTROLLED PROPERTY ARE UNCHANGED FROM THE PREVIOUS CERTIFICATION OR THAT ANY CHANGES TO THE CONTROLS WERE APPROVED BY THE NYSDEC; AND, (2) NOTHING HAS OCCURRED THAT IMPAIRS THE ABILITY OF THE CONTROLS TO PROTECT PUBLIC HEALTH AND ENVIRONMENT OR THAT CONSTITUTE A VIOLATION OR FAILURE TO COMPLY WITH THE SMP.

PROPOSED DESCRIPTION FOR BUSINESS PARK PHASE II, PARCEL A

ALL THAT TRACT OR PARCEL OF LAND SITUATE IN THE CITY OF LACKAWANNA, COUNTY OF ERIE AND STATE OF NEW YORK, BEINGS PART OF LOT 15 OF THE OGDEN GORE TRACT AND PART OF LOT 23 OF THE BUFFALO CREEK RESERVATION, TOWNSHIP 10, RANGE 8 OF THE HOLLAND LAND COMPANY'S SURVEY, AND MORE PARTICULARLY BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT THE INTERSECTION OF THE WESTERLY HIGHWAY BOUNDARY OF THE HAMBURG TURNPIKE (ALSO KNOWN AS STATE ROUTE NO. 5) AS APPROPRIATED BY THE NEW YORK STATE DEPARTMENT OF PUBLIC WORKS AS SHOWN ON MAP NO. 1, PARCEL 1 AND RECORDED IN THE ERIE COUNTY CLERK'S OFFICE IN LIBER 5650 OF DEEDS AT PAGE 404 AND THE MUNICIPAL BOUNDARY LINE BETWEEN THE CITY OF LACKAWANNA (TO THE NORTH) AND THE TOWN OF HAMBURG (TO THE SOUTH). SAID POINT ALSO BEING ALONG THE NORTHERLY BOUNDARY OF LANDS CONVEYED TO THE SOUTH BUFFALO RAILWAY COMPANY BY DEED RECORDED IN THE ERIE COUNTY CLERK'S OFFICE IN LIBER 10119 OF DEEDS AT PAGE 131;

THENCE WESTERLY ALONG THE NORTHERLY LINE OF SAID SOUTH BUFFALO RAILWAY COMPANY'S LAND N 86°–32'–54" W, A DISTANCE OF 507.02 FEET TO AN ANGLE POINT;

THENCE NORTHWESTERLY CONTINUING ALONG SOUTH BUFFALO RAILWAY COMPANY'S LAND N 56°–55'–40" W, A DISTANCE OF 386.48 FEET TO A POINT;

THENCE NORTHERLY N 03°–25'–27" W, A DISTANCE OF 1284.41 FEET TO A POINT OF CURVATURE OF A TANGENT CURVE;

THENCE ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 518.00 FEET, AN ARC LENGTH OF 168.84 FEET, A CHORD BEARING OF N 12°–45'–43" W AT A DISTANCE OF 168.10 FEET, TO A POINT APPROXIMATELY 25 FEET SOUTH FROM THE EXISTING SOUTHERLY TOP OF HIGH BANK OF SMOKES CREEK;

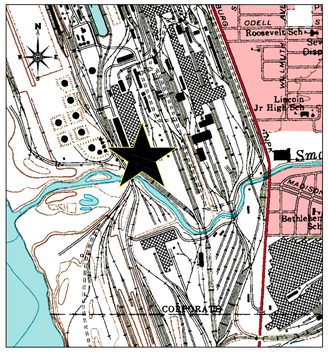
THENCE NORTHEASTERLY CONTINUING APPROXIMATELY 25 FEET SOUTH FROM THE EXISTING SOUTHERLY TOP OF HIGH BANK THE FOLLOWING 6 COURSES AND DISTANCES;

1. N 80°–39'–39" E, A DISTANCE OF 37.52 FEET;
2. N 44°–31'–00" E, A DISTANCE OF 261.86 FEET;
3. N 71°–51'–20" E, A DISTANCE OF 455.12 FEET;
4. N 20°–01'–37" E, A DISTANCE OF 360.67 FEET;
5. N 03°–49'–42" E, A DISTANCE OF 217.94 FEET;
6. N 72°–45'–22" E, A DISTANCE OF 373.92 FEET TO A POINT ON THE WESTERLY HIGHWAY BOUNDARY OF THE HAMBURG TURNPIKE AS ACQUIRED BY THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION UNDER S.H. NO. FAC 49–10 MAP 305, PARCEL 306 AND RECORDED IN THE ERIE COUNTY CLERK'S OFFICE IN LIBER 10960 OF DEEDS AT PAGE 2028;

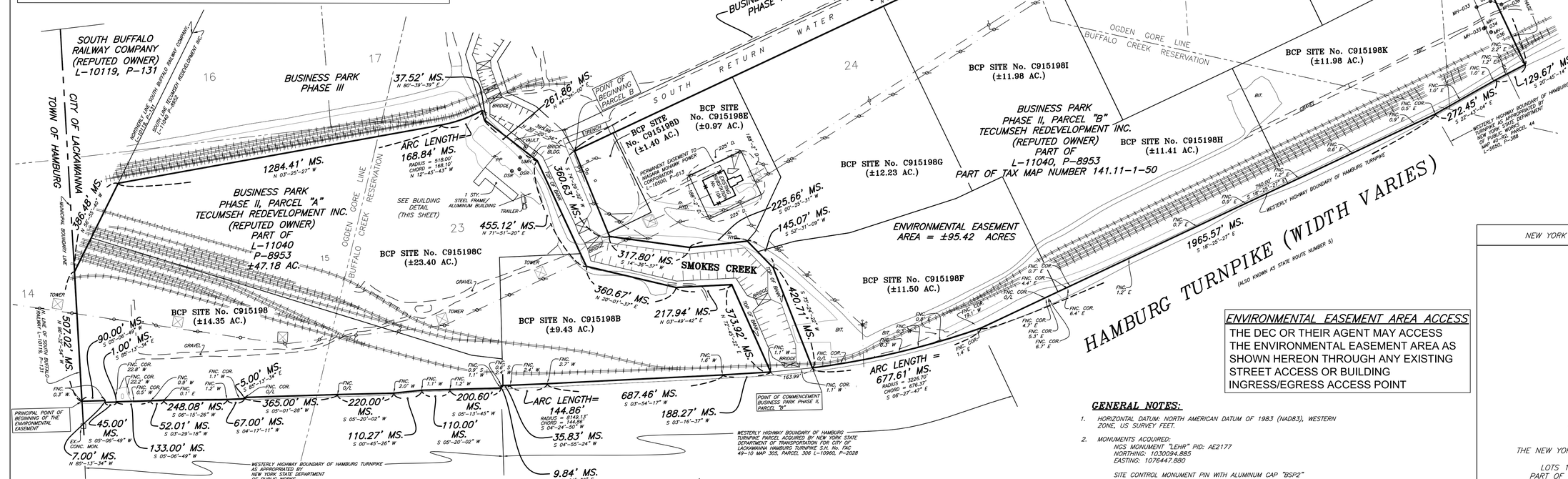
THENCE CONTINUING ALONG SAID WESTERLY HIGHWAY BOUNDARY THE FOLLOWING 19 COURSES AND DISTANCES;

1. S 03°–16'–37" W, A DISTANCE OF 188.27 FEET;
2. S 03°–54'–17" W, A DISTANCE OF 687.46 FEET TO THE POINT OF CURVATURE OF A TANGENT CURVE;
3. THENCE ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 8149.13 FEET, AN ARC LENGTH OF 144.86 FEET, A CHORD BEARING OF S 04°–24'–50" W AT A DISTANCE OF 144.86 FEET;
4. S 04°–55'–24" W, A DISTANCE OF 35.83 FEET;
5. S 85°–04'–36" E, A DISTANCE OF 9.84 FEET;
6. S 05°–13'–45" W, A DISTANCE OF 200.60 FEET;
7. S 05°–20'–02" W, A DISTANCE OF 110.00 FEET;
8. S 00°–45'–26" W, A DISTANCE OF 110.27 FEET;
9. S 05°–20'–02" W, A DISTANCE OF 220.00 FEET;
10. S 05°–01'–28" W, A DISTANCE OF 365.00 FEET;
11. S 85°–13'–34" E, A DISTANCE OF 5.00 FEET;
12. S 04°–17'–11" W, A DISTANCE OF 67.00 FEET;
13. S 06°–15'–26" W, A DISTANCE OF 248.08 FEET;
14. S 03°–29'–18" W, A DISTANCE OF 52.01 FEET;
15. S 05°–06'–49" W, A DISTANCE OF 133.00 FEET;
16. S 85°–13'–34" E, A DISTANCE OF 1.00 FEET;
17. S 05°–06'–49" W, A DISTANCE OF 45.00 FEET;
18. N 85°–13'–34" W, A DISTANCE OF 7.00 FEET;
19. S 05°–06'–49" W, A DISTANCE OF 90.00 FEET TO THE POINT OF BEGINNING, CONTAINING 47.18 ACRES OF LAND MORE OR LESS.

BEING PART OF THE PIECE OR PARCEL OF LAND IN A BARGAIN AND SALE DEED DATED 5/06/2003 AND RECORDED 5/22/2003 IN LIBER 11040 OF DEEDS AT PAGE 8953 IN THE ERIE COUNTY CLERK'S OFFICE. THIS PARCEL OF LAND IS PART OF THE OVERALL DEED.



BUFFALO SE QUADRANGLE,
7.5 MINUTE SERIES (TOPOGRAPHIC)
PROJECT LOCATION SKETCH
NOT TO SCALE



PROPOSED DESCRIPTION FOR BUSINESS PARK PHASE II, PARCEL B

ALL THAT TRACT OR PARCEL OF LAND SITUATE IN THE CITY OF LACKAWANNA, COUNTY OF ERIE AND STATE OF NEW YORK, BEINGS PART OF LOTS 18, 20, 21 OF THE OGDEN GORE TRACT AND PART OF LOTS 24 OF THE BUFFALO CREEK RESERVATION, TOWNSHIP 10, RANGE 8 OF THE HOLLAND LAND COMPANY'S SURVEY, AND MORE PARTICULARLY BOUNDED AND DESCRIBED AS FOLLOWS:

COMMENCING AT THE INTERSECTION OF THE WESTERLY HIGHWAY BOUNDARY OF THE HAMBURG TURNPIKE (ALSO KNOWN AS STATE ROUTE NO. 5) AS APPROPRIATED BY THE NEW YORK STATE DEPARTMENT OF PUBLIC WORKS AS SHOWN ON MAP NO. 1, PARCEL 1 AND RECORDED IN THE ERIE COUNTY CLERK'S OFFICE IN LIBER 5650 OF DEEDS AT PAGE 404 AND THE MUNICIPAL BOUNDARY LINE BETWEEN THE CITY OF LACKAWANNA (TO THE NORTH) AND THE TOWN OF HAMBURG (TO THE SOUTH). SAID POINT ALSO BEING ALONG THE NORTHERLY BOUNDARY OF LANDS CONVEYED TO THE SOUTH BUFFALO RAILWAY COMPANY BY DEED RECORDED IN THE ERIE COUNTY CLERK'S OFFICE IN LIBER 10119 OF DEEDS AT PAGE 131;

THENCE WESTERLY CONTINUING ALONG THE MUNICIPAL BOUNDARY LINE AND THE NORTHERLY LINE OF SAID SOUTH BUFFALO RAILWAY COMPANY'S LAND N 86°–32'–54" W, A DISTANCE OF 507.02 FEET TO A POINT;

THENCE NORTHWESTERLY CONTINUING ALONG SOUTH BUFFALO RAILWAY COMPANY'S LAND N 56°–55'–40" W, A DISTANCE OF 386.48 FEET TO A POINT;

THENCE NORTHERLY N 03°–25'–27" W, A DISTANCE OF 1284.41 FEET TO A POINT OF CURVATURE OF A TANGENT CURVE TO THE LEFT HAVING A RADIUS OF 518.00 FEET, ARC LENGTH OF 168.84 FEET, A CHORD BEARING OF N 12°–45'–43" W, A DISTANCE OF 168.10 FEET;

THENCE NORTHEASTERLY CROSSING SMOKES CREEK N 30°–20'–56" E, A DISTANCE OF 395.96 FEET TO A POINT APPROXIMATELY 25 FEET NORTH FROM THE EXISTING NORTHERLY TOP OF HIGH BANK OF SMOKES CREEK AND THE POINT OF BEGINNING;

THENCE NORTHERLY N 18°–20'–36" W, A DISTANCE OF 3292.99 FEET TO A POINT;

THENCE WESTERLY S 71°–34'–47" W, A DISTANCE OF 93.00 FEET TO A POINT;

THENCE NORTHERLY N 18°–20'–36" W, A DISTANCE OF 214.85 FEET TO A POINT ON THE SOUTHERLY LINE OF LANDS CONVEYED TO GATEWAY TRADE CENTER INC. BY DEED RECORDED IN THE ERIE COUNTY CLERK'S OFFICE IN LIBER 10886 OF DEEDS AT PAGE 1064;

THENCE EASTERLY N 71°–41'–32" E, A DISTANCE OF 28.04 FEET TO A SOUTHEAST CORNER OF SAID GATEWAY TRADE CENTER INC. LANDS;

THENCE EASTERLY N 71°–11'–53" E, A DISTANCE OF 86.73 FEET TO A SOUTHWEST CORNER OF "BUSINESS PARK, PHASE I" AS SHOWN ON A MAP PREPARED BY WENDEL, DATED JUNE 2012, PROJECT NUMBER 411107;

THENCE EASTERLY CONTINUING ALONG THE SOUTHERLY LINE OF SAID BUSINESS PARK PHASE I, N 71°–31'–33" E, A DISTANCE OF 1251.00 FEET TO A POINT ON THE WESTERLY HIGHWAY BOUNDARY OF HAMBURG TURNPIKE AS APPROPRIATED BY THE NEW YORK STATE DEPARTMENT OF PUBLIC WORKS AS SHOWN ON MAP NO. 40–R2, PARCEL 44 AND RECORDED IN THE ERIE COUNTY CLERK'S OFFICE IN LIBER 5650 OF DEEDS AT PAGE 588;

THENCE SOUTHERLY CONTINUING ALONG THE WESTERLY HIGHWAY BOUNDARY OF HAMBURG TURNPIKE THE FOLLOWING 4 COURSES AND DISTANCES:

1. S 20°–45'–14" E, A DISTANCE OF 129.67 FEET;
2. S 22°–43'–04" E, A DISTANCE OF 272.45 FEET;
3. S 18°–25'–27" E, A DISTANCE OF 1965.57 FEET TO THE POINT OF CURVATURE OF A NON–TANGENT CURVE;
4. THENCE ALONG A CURVE TO THE RIGHT, HAVING A RADIUS OF 3226.70 FEET, AS ARC LENGTH OF 677.61 FEET, A CHORD BEARING OF S 06°–27'–47" E AT A DISTANCE OF 676.37 FEET, TO A POINT WHICH IS APPROXIMATELY 25 FEET NORTH FROM THE EXISTING NORTHERLY TOP OF HIGH BANK OF SMOKES CREEK;

THENCE WESTERLY & SOUTHERLY CONTINUING APPROXIMATELY 25 FEET NORTH FROM THE EXISTING NORTHERLY TOP OF HIGH BANK OF SMOKES CREEK THE FOLLOWING 5 COURSES AND DISTANCES;

1. S 75°–24'–22" W, A DISTANCE OF 420.71 FEET;
2. S 52°–31'–09" W, A DISTANCE OF 145.07 FEET;
3. S 00°–25'–31" W, A DISTANCE OF 225.66 FEET;
4. S 14°–36'–37" W, A DISTANCE OF 317.80 FEET;
5. S 74°–29'–02" W, A DISTANCE OF 360.63 FEET TO THE POINT OF BEGINNING

CONTAINING 95.42 ACRES OF LAND MORE OR LESS.

BEING PART OF THE PIECE OR PARCEL OF LAND IN A BARGAIN AND SALE DEED DATED 5/06/2003 AND RECORDED 5/22/2003 IN LIBER 11040 OF DEEDS AT PAGE 8953 IN THE ERIE COUNTY CLERK'S OFFICE. THIS PARCEL OF LAND IS PART OF THE OVERALL DEED.

SCHEDULE B, SECTION 2: CHICAGO TITLE INSURANCE COMPANY COMMITMENT FOR TITLE INSURANCE #1213–25117:

EXCEPTION NUMBER:

10A. PERMANENT EASEMENT TO NIAGARA MOHAWK POWER CORPORATION FOR STATION 10A 188°–2" X 225" L–10500, P–613 (SHOWN HEREON)

10B. 25.0' WIDE EASEMENT FOR INGRESS AND EGRESS FROM PUBLIC HIGHWAY TO STATION 10A TRUCK GATE. L–10500, P–613 (UNABLE TO PLOT)

11A. AIRSPACE AND EASEMENT RIGHTS SETTLEMENT. LIBER 11145, PAGE 2422, (PLOTTED HEREON)

11B. RE–PURCHASE RIGHTS & EASEMENT TO BQ ENERGY LIBER 11145, PAGE 2733, (PLOTTED HEREON)

12. EASEMENT TO GREAT LAKES INDUSTRIAL DEVELOPMENT, LLC., LIBER 11194, PAGE 6243, (UNABLE TO PLOT)

13. EASEMENT TO NATIONAL FUEL GAS DISTRIBUTION CORPORATION LIBER 11220, PAGE 2359 (DOES NOT AFFECT PREMISES)

14. EASEMENT FOR ACCESS, INGRESS AND EGRESS TO ERIE WIND, LLC LIBER 11214, PAGE 4899 & LIBER 11216 PAGE 7305 (PLOTTED HEREON)

20. PUBLIC AND PRIVATE RIGHTS OF OTHERS TO THE BED AND WATERS OF SMOKES CREEK; INCLUDING ANY REGULATORY STATUES AFFECTING THE SAME: (UNABLE TO PLOT)

THIS PROPERTY IS SUBJECT TO AN ENVIRONMENTAL EASEMENT HELD BY THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION PURSUANT TO TITLE 36 OF ARTICLE 71 OF THE NEW YORK ENVIRONMENTAL CONSERVATION LAW.

THE ENGINEERING AND INSTITUTIONAL CONTROLS FOR THIS EASEMENT ARE SET FORTH IN THE SITE MANAGEMENT PLAN (SMP). A COPY OF THE SMP MUST BE OBTAINED BY ANY PARTY WITH AN INTEREST IN THE PROPERTY. THE SMP CAN BE OBTAINED FROM THE NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION, DIVISION OF ENVIRONMENTAL REMEDIATION, SITE CONTROL SECTION, 625 BROADWAY, ALBANY, NY 12233 OR AT DERWEB@GW.DEC.STATE.NY.US.

ENVIRONMENTAL EASEMENT AREA ACCESS

THE DEC OR THEIR AGENT MAY ACCESS THE ENVIRONMENTAL EASEMENT AREA AS SHOWN HEREON THROUGH ANY EXISTING STREET ACCESS OR BUILDING INGRESS/EGRESS ACCESS POINT

GENERAL NOTES:

1. HORIZONTAL DATUM: NORTH AMERICAN DATUM OF 1983 (NAD83), WESTERN ZONE, US SURVEY FEET.
2. MONUMENTS ACQUIRED:
   NGS MONUMENT "LEHR" PID: AE2177
   NORTHING: 1030094.885
   EASTING: 1076447.880

   SITE CONTROL MONUMENT PIN WITH ALUMINUM CAP "BSP2"
   NORTHING: 1024721.330
   EASTING: 1076610.356
3. BUFFALO CREEK RESERVATION & OGDEN GORE TRACT INFORMATION IS SHOWN IN ITS APPROXIMATE LOCATION FROM MAPS FILED IN THE ERIE COUNTY CLERKS OFFICE.
4. REFER TO NEW YORK STATE DEPARTMENT OF TRANSPORTATION APPROPRIATION MAPS FOR MAP DISTANCES & BEARINGS.
5. PROPERTY CORNERS TO BE STAKED AT A LATER DATE.
6. BCP SITE No. #### = PARCEL DESIGNATION
7. REFERENCE MAPS:
   MAP PREPARED BY BERGMANN ASSOCIATES 10/16/00, MAP NO. 303, PARCEL 303 OF THE HAMBURG TURNPIKE ARTERIAL HIGHWAY, DATED APRIL 15, 1960, PREPARED BY THE NEW YORK STATE DEPARTMENT OF PUB

APPENDIX B

EXCAVATION WORK PLAN

BROWNFIELD CLEANUP PROGRAM

APPENDIX B
EXCAVATION WORK PLAN

TECUMSEH PHASE II BUSINESS PARK
NYSDEC SITE NUMBERS: C915198 through C915198L
LACKAWANNA, NEW YORK

December 2013 0071-012-322

THIS HAS BEEN REVISED JULY 2021
AND IS PROIVED AS APPENDIX 3

Prepared By:

TurnKey Environmental Restoration, LLC
2558 Hamburg Turnpike, Suite 300
Buffalo, NY 14218
(716) 856-0635

APPENDIX C

EXAMPLE
HEALTH & SAFETY PLAN (HASP)
&
COMMUNITY AIR MONITORING PLAN (CAMP)

Site-Wide Health and Safety Plan (HASP)

Tecumseh Redevelopment BCP Sites
Lackawanna, New York

April 2010
Revised July 2013

0071-012-322

Prepared By:

TurnKey Environmental Restoration, LLC

Benchmark Environmental Engineering & Science, PLLC

2558 Hamburg Turnpike, Suite 300, Buffalo, New York | phone: (716) 856-0599 | fax: (716) 856-0583

TECUMSEH REDEVELOPMENT SITE
SITE-WIDE HEALTH AND SAFETY PLAN

ACKNOWLEDGEMENT

Plan Reviewed by (initial):

Corporate Health and Safety Director: _____

Project Manager: _____

Designated Site Safety and Health Officer: _____

Acknowledgement:
I acknowledge that I have reviewed the information contained in this site-specific Health and Safety Plan, and understand the hazards associated with performance of the field activities described herein. I agree to comply with the requirements of this plan.

NAME (PRINT)	SIGNATURE	DATE

TECUMSEH REDEVELOPMENT BCP SITES
SITE-WIDE HEALTH AND SAFETY PLAN

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1.0 INTRODUCTION

1.1 General

In accordance with OSHA requirements contained in 29 CFR 1910.120, this Health and Safety Plan (HASP) describes the specific health and safety practices and procedures to be employed by TurnKey Environmental Restoration, LLC and Benchmark Environmental Engineering & Science, PLLC employees (referred to jointly hereafter as "TurnKey-Benchmark") during Brownfield Cleanup Program (BCP) activities on the Tecumseh Redevelopment Site (former Bethlehem Steel Lackawanna Works), located in the City of Lackawanna, New York. This HASP presents procedures for TurnKey-Benchmark employees who will be involved with investigation and remedial field activities; it does not cover the activities of other contractors, subcontractors, or other individuals on the Site. These firms will be required to develop and enforce their own HASPs as discussed in Section 2.0. TurnKey-Benchmark accepts no responsibility for the health and safety of contractor, subcontractor, or other personnel.

This HASP presents information on known Site health and safety hazards using available historical information, and identifies the equipment, materials, and procedures that will be used to eliminate or control these hazards. Environmental monitoring will be performed during the course of field activities to provide real-time data for on-going assessment of potential hazards.

1.2 Background

Tecumseh Redevelopment Inc. (Tecumseh) owns approximately 1,100 acres of land at 1951 Hamburg Turnpike, approximately 2 miles south of the City of Buffalo (see Figure 1). The majority of Tecumseh's property is located in the City of Lackawanna (the City), with portions of the property extending into the Town of Hamburg. Tecumseh's property is bordered by: NY State Route 5 (Hamburg Turnpike) on the east; Lake Erie to the west and northwest; and other industrial properties to the south and the northeast. Figure 2 provides an overview of the Tecumseh Property, including major leased or licensed parcels, and adjacent parcels owned by others.

The Tecumseh property is located on a portion of the Site of the former Bethlehem Steel Corporation (BSC) Lackawanna Works in a primarily industrial area. The property was

formerly used for the production of steel, coke, and related products by Bethlehem Steel Corporation (BSC). According to the Real Estate Records, in 1937, Bethlehem Steel Company owned the subject Site. In 1964, Bethlehem Steel Company merged into Bethlehem Steel Corporation. Steel production on the property was discontinued in 1983 and the coke ovens ceased activity in 2000. Tecumseh acquired the property, along with other BSC assets, out of bankruptcy in 2003.

A Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) of the entire former Bethlehem Steel Lackawanna Works was initiated by BSC under an Administrative Order issued by the United States Environmental Protection Agency (USEPA) in 1990. Tecumseh completed the RFI in January 2005. In September 2006, USEPA approved the RFI and terminated Bethlehem Steel's (and in turn Tecumseh's) obligation under the 1990 Administrative Order. Tecumseh has entered into an Order on Consent with the New York State Department of Environmental Conservation (NYSDEC) to undertake a corrective measures study (CMS) at certain solid waste management units (SWMUs) primarily on the western slag fill and coke manufacturing portion of the property.

Outside of the CMS Area, Tecumseh designated five parcels for redevelopment under the New York State Brownfield Cleanup Program (BCP). These include: The Phase I, IA, II, and III Business Park, which are at various points of investigation and cleanup under the BCP and are slated for commercial/industrial redevelopment, and the Steel Winds Site, which was remediated under the BCP and redeveloped as a commercial wind farm.

This Site-Wide Health and Safety Plan (HASP) applies to the Business Park Sites under the BCP.

1.3 Known and Suspected Environmental Conditions

The Phase I, IA, II, and III Business Parks were formerly used to house portions of BSC's steelmaking operations. The slag and other industrial fill materials contain highly variable and sometimes elevated concentrations of metals, as well as semi-volatile and volatile organic compounds (SVOCs and VOCs). In addition, groundwater in contact with the soil/fill materials described above may exhibit elevated concentrations of corresponding soluble COPCs (e.g., BTEX) in groundwater.

1.4 Parameters of Interest

Constituents of potential concern (COPCs) at the BCP Sites include:

- **Volatile Organic Compounds (VOCs)** – VOCs present at elevated concentration may include benzene, toluene, ethylbenzene, and xylene (i.e., BTEX). These VOCs are typically associated with storage and handling of petroleum products such as gasoline.
- **Semi-Volatile Organic Compounds (SVOCs) –** SVOCs present at elevated concentrations may include base-neutral semi-volatile organic compounds (SVOCs) from oils, greases, and fuels associated with the operation of locomotive engines, steel mills, petroleum bulk storage, and other historic steel manufacturing operations. Specifically, polycyclic aromatic hydrocarbons (PAHs), which are byproducts of incomplete combustion and impurities in petroleum products. Although PAHs are commonly found in urban soil environments, they may be present at the Site at concentrations that are elevated compared to typical "background" levels. Naphthalene is a natural component of fossil fuels such as petroleum and coal; it is also formed when natural products such as wood or tobacco are burned.
- **Polychlorinated Biphenyls (PCBs)** – The potential impact of surface and subsurface soils by PCBs in discrete areas associated with former substations, rail yards, and hydraulic pump houses.
- **Inorganic Compounds** – Inorganic COPCs potentially present at elevated concentrations due to steel making activities may include arsenic, cadmium, chromium, lead, and mercury. Several of these parameters are components of coke and slag which are prevalent in the planned work area.

In addition, groundwater in contact with the soil/fill materials described above may exhibit elevated concentrations of corresponding soluble COPCs (e.g., BTEX).

1.5 Overview of BCP Activities

TurnKey-Benchmark personnel will be on-site to observe BCP investigation and remedial activities. General field activities to be completed are described below. Detailed BCP activities are more fully described in the individual work plans for each property.

1. **Soil/Fill Excavation:** TurnKey-Benchmark will monitor all soil/fill excavations (e.g., wind turbine foundation excavation, test pit investigations) and related activities to visually inspect soil/fill for evidence of contamination.

2. **Soil/Fill Documentation Sampling:** TurnKey-Benchmark will collect surface and subsurface soil/fill documentation samples following excavation.
3. **Surface Water Management:** During excavation, surface water and/or perched groundwater infiltration may occur. TurnKey-Benchmark will direct the contractor to collect and characterize the surface water for proper disposal.
4. **Subgrade Work:** Significant grading may be required before implementation of remedial measures (e.g., cover system placement).
5. **Cover Soil Placement:** A soil cover system will be placed over select portions of the Site to reduce potential contact with impacted soil/fill. TurnKey-Benchmark will oversee installation of the cover system.
6. **Groundwater Monitoring Well Installation and Sampling:** TurnKey-Benchmark will install groundwater monitoring wells and collect samples for the long-term groundwater monitoring program.
7. **Groundwater Remediation:** TurnKey-Benchmark personnel will oversee the potential groundwater remediation at the Site, which may include installation of treatment (ORC/HRC) filter socks in groundwater monitoring wells.

2.0 ORGANIZATIONAL STRUCTURE

This chapter of the HASP describes the lines of authority, responsibility, and communication as they pertain to health and safety functions at the BCP Sites. The purpose of this chapter is to identify the personnel who impact the development and implementation of the HASP and to describe their roles and responsibilities. This chapter also identifies other contractors and subcontractors involved in work operations, and establishes the lines of communications among them for health and safety matters. The organizational structure described in this chapter is consistent with the requirements of 29 CFR 1910.120(b)(2). This section will be reviewed by the Project Manager and updated as necessary to reflect the current organizational structure at the BCP Sites.

2.1 Roles and Responsibilities

All Turnkey-Benchmark personnel on the Site must comply with the minimum requirements of this HASP. The specific responsibilities and authority of management, safety, and health, and other personnel on this site are detailed in the following paragraphs.

2.1.1 Corporate Health and Safety Director

The TurnKey-Benchmark Corporate Health and Safety Director is ***Mr. Michael M. Yount, CESCO.*** The Corporate Health and Safety Director responsible for developing and implementing the Health and Safety program and policies for Benchmark Environmental Engineering & Science, PLLC and TurnKey Environmental Restoration, LLC, and consulting with corporate management to ensure adequate resources are available to properly implement these programs and policies. The Corporate Health and Safety Director coordinates TurnKey-Benchmark's Health and Safety training and medical monitoring programs and assists project management and field staff in developing site-specific health and safety plans.

2.1.2 Project Manager

The Project Manager for these Sites is ***Thomas H. Forbes, P.E.*** The Project Manager has the responsibility and authority to direct all TurnKey-Benchmark work operations at the site. The Project Manager coordinates safety and health functions with the

Site Safety and Health Officer, and bears ultimate responsibility for proper implementation of this HASP. He may delegate authority to expedite and facilitate any application of the program, including modifications to the overall project approach as necessary to circumvent unsafe work conditions. Specific duties of the Project Manager include:

- Preparing and coordinating the site work plan.
- Providing TurnKey-Benchmark workers with work assignments and overseeing their performance.
- Coordinating health and safety efforts with the Site Safety and Health Officer (SSHO).
- Reviewing the emergency response coordination plan to assure its effectiveness.
- Serving as the primary liaison with site contractors and the property owner.

2.1.3 Site Safety and Health Officer

The Site Safety and Health Officer (SSHO) for this site is ***Mr. Richard L. Dubisz***. The qualified alternate SSHO is ***Mr. Thomas Behrendt.*** The SSHO reports to the Project Manager. The SSHO is on-site or readily accessible to the site during all work operations and has the authority to halt site work if unsafe conditions are detected. The specific responsibilities of the SSHO are:

- Managing the safety and health functions for TurnKey-Benchmark personnel on the site.
- Serving as the point of contact for safety and health matters.
- Ensuring that TurnKey-Benchmark field personnel working on the site have received proper training (per 29 CFR Part 1910.120(e)), that they have obtained medical clearance to wear respiratory protection (per 29 CFR Part 1910.134), and that they are properly trained in the selection, use and maintenance of personal protective equipment, including qualitative respirator fit testing.
- Performing or overseeing site monitoring as required by the HASP.
- Assisting in the preparation and review of the HASP
- Maintaining site-specific safety and health records as described in this HASP
- Coordinating with the Project Manager, Site Workers, and Contractor's SSHO as necessary for safety and health efforts.

2.1.4 Site Workers

Site workers are responsible for: complying with this HASP or a more stringent HASP, if appropriate (i.e., Contractor and Subcontractor's HASP); using proper PPE; reporting unsafe acts and conditions to the SSHO; and following the safety and health instructions of the Project Manager and SSHO.

2.1.5 Other Site Personnel

Other site personnel who will have health and safety responsibilities will include the Remedial Contractor, who will be responsible for developing, implementing, and enforcing a Health and Safety Plan equally stringent or more stringent than TurnKey-Benchmark's HASP. TurnKey-Benchmark assumes no responsibility for the health and safety of anyone outside its direct employ. Each Contractor's HASP shall cover all non-TurnKey/ Benchmark site personnel. Each Contractor shall assign a SSHO who will coordinate with TurnKey-Benchmark's SSHO as necessary to ensure effective lines of communication and consistency between contingency plans.

In addition to TurnKey-Benchmark and Contractor personnel, other individuals who may have responsibilities in the work zone include subcontractors and governmental agencies performing site inspection work (i.e., the New York State Department of Environmental Conservation). The Contractor shall be responsible for ensuring that these individuals have received OSHA-required training (29 CFR 1910.120(e)), including initial, refresher and site-specific training, and shall be responsible for the safety and health of these individuals while they are on-site.

3.0 HAZARD EVALUATION

Due to the presence of certain contaminants at the BCP Sites, the possibility exists that workers will be exposed to hazardous substances during field activities. The principal points of exposure would be through direct contact with and incidental ingestion of soil/fill, and through the inhalation of contaminated particles or vapors, during test pit completion, monitoring well installation, and soil/fill excavation. In addition, the use of heavy construction equipment (e.g., dozer) will also present conditions for potential physical injury to workers. Further, since work will be performed outdoors, the potential exists for heat/cold stress to impact workers, especially those wearing protective equipment and clothing. Adherence to the medical evaluations, worker training relative to chemical hazards, safe work practices, proper personal protection, environmental monitoring, establishment work zones and site control, appropriate decontamination procedures and contingency planning outlined herein will reduce the potential for chemical exposures and physical injuries.

3.1 Chemical Hazards

As discussed in Section 1.3, historic activities related to the former steel-manufacturing operations and facilities have resulted in elevated concentrations of VOCs, SVOCs, PCBs, and inorganic compounds in soil/fill and groundwater. Table 1 identifies maximum concentrations of COPCs detected throughout the Tecumseh property. Table 2 lists exposure limits for airborne concentrations of the COPCs identified in Section 1.4 of this HASP. Brief descriptions of the toxicology of the prevalent constituents of potential concern and related health and safety guidance and criteria are provided below.

- **Arsenic (CAS #7440-38-2)** is a naturally occurring element and is usually found combined with one or more elements, such as oxygen or sulfur. Inhalation is a more important exposure route than ingestion. First phase exposure symptoms include nausea, vomiting, diarrhea and pain in the stomach. Prolonged contact is corrosive to the skin and mucus membranes. Arsenic is considered a Group A human carcinogen by the USEPA. Exposure via inhalation is associated with an increased risk of lung cancer. Exposure via the oral route is associated with an increased risk of skin cancer.
- **Benzene (CAS #71-43-2)** poisoning occurs most commonly through inhalation of the vapor; however, benzene can also penetrate the skin and poison in that way. Locally, benzene has a comparatively strong irritating effect, producing

erythema and burning and, in more severe cases, edema and blistering. Exposure to high concentrations of the vapor (i.e., 3,000 ppm or higher) may result in acute poisoning characterized by the narcotic action of benzene on the central nervous system. In acute poisoning, symptoms include confusion, dizziness, tightening of the leg muscles, and pressure over the forehead. Chronic exposure to benzene (i.e., long-term exposure to concentrations of 100 ppm or less) may lead to damage of the blood-forming system. Benzene is very flammable when exposed to heat or flame and can react vigorously with oxidizing materials.

- **Cadmium** is a natural element and is usually combined with one or more elements, such as oxygen, chloride, or sulfur. Breathing high levels of cadmium severely damages the lungs and can cause death. Ingestion of high levels of cadmium severely irritates the stomach, leading to vomiting and diarrhea. Long term exposure to lower levels of cadmium leads to a buildup of this substance in the kidneys and possible kidney disease. Other potential long term effects are lung damage and fragile bones. Cadmium is suspected to be a human carcinogen.
- **Chromium (CAS #7440-47-3)** is used in the production of stainless steel, chrome plated metals, and batteries. Two forms of chromium, hexavalent (CR+6) and trivalent (CR+3) are toxic. Hexavalent chromium is an irritant and corrosive to the skin and mucus membranes. Chromium is a potential occupational carcinogen. Acute exposures to dust may cause coughing, wheezing, headaches, pain and fever.
- **Ethylbenzene (CAS #100-41-4)** is a component of automobile gasoline. Over-exposure may cause kidney, skin liver and/or respiratory disease. Signs of exposure may include dermatitis, irritation of the eyes and mucus membranes, headache. Narcosis and coma may result in more severe cases.
- **Lead (CAS #7439-92-1)** can affect almost every organ and system in our bodies. The most sensitive is the central nervous system, particularly in children. Lead also damages kidneys and the immune system. The effects are the same whether it is breathed or swallowed. Lead may decrease reaction time, cause weakness in fingers, wrists, or ankles, and possibly affect memory. Lead may cause anemia.
- **Mercury (CAS #7439-97-6)** is used in industrial applications for the production of caustic and chlorine, and in electrical control equipment and apparatus. Over-exposure to mercury may cause coughing, chest pains, bronchitis, pneumonia, indecision, headaches, fatigue, and salivation. Mercury is a skin and eye irritant.
- **Naphthalene (CAS #91-20-3)** is a white solid with a strong smell; is also called mothballs, moth flakes, white tar, and tar camphor. Naphthalene is a natural component of fossil fuels such as petroleum and coal; it is also formed when natural products such as wood or tobacco are burned. Acute exposure to naphthalene can cause systemic reactions, including nausea, headache,

diaphoresis, hematuria, fever, anemia, liver damage, vomiting, convulsions, and coma. Acute exposure can also cause eye irritation, confusion, excitement, malaise, abdominal pain, irritation to the bladder, profuse sweating, jaundice, hematopoietic, hemoglobinuria, renal shutdown, and dermatitis. Exposure to a large amount of naphthalene can cause red blood cells to be damaged or destroyed, a condition called hemolytic anemia, which leads to fatigue, lack of appetite, restlessness, and a pale appearance. Poisoning may occur by ingestion of large doses, skin and/or eye contact, inhalation, or skin absorption.

- **Polycyclic Aromatic Hydrocarbons (PAHs)** are formed as a result of the pyrolysis and incomplete combustion of organic matter such as fossil fuel. PAH aerosols formed during the combustion process disperse throughout the atmosphere, resulting in the deposition of PAH condensate in soil, water and on vegetation. In addition, several products formed from petroleum processing operations (e.g., roofing materials and asphalt) also contain elevated levels of PAHs. Hence, these compounds are widely dispersed in the environment. PAHs are characterized by a molecular structure containing three or more fused, unsaturated carbon rings. Seven of the PAHs are classified by USEPA as probable human carcinogens (USEPA Class B2). These are: benzo(a)pyrene; benzo(a)anthracene; benzo(b)fluoranthene; benzo(k)fluoranthene; chrysene; dibenzo(a,h)anthracene; and indeno(1,2,3-cd)pyrene. The primary route of exposure to PAHs is through incidental ingestion and inhalation of contaminated particulates. PAHs are characterized by an organic odor, and exist as oily liquids in pure form. Acute exposure symptoms may include acne-type blemishes in areas of the skin exposed to sunlight.
- **Polychlorinated Biphenyls (PCBs)** are associated with former substations, rail yards, and hydraulic pump houses on the Site. PCBs can be absorbed into the body by inhalation of its aerosol, through the skin, and by ingestion. Repeated or prolonged contact with skin may cause dermatitis. PCBs may have effects on the liver. Animal tests show that PCBs possibly cause toxic effects in human reproduction. In the food chain, bioaccumulation takes place, specifically in aquatic organisms. A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C.
- **Toluene (CAS #108-88-3)** is a common component of paint thinners and automobile fuel. Acute exposure predominantly results in central nervous system depression. Symptoms include headache, dizziness, fatigue, muscular weakness, drowsiness, and coordination loss. Repeated exposures may cause removal of lipids from the skin, resulting in dry, fissured dermatitis.
- **Xylenes (o, m, and p) (CAS #95-47-6, 108-38-3, and 106-42-3)** are colorless, flammable liquids present in paint thinners and fuels. Acute exposure may cause central nervous system depression, resulting in headache, dizziness, fatigue,

muscular weakness, drowsiness, and coordination loss. Repeated exposures may also cause removal of lipids from the skin, producing dry, fissured dermatitis. Exposure of high concentrations of vapor may cause eye irritation and damage, as well as irritation of the mucus membranes.

With respect to the anticipated BCP activities discussed in Section 1.5, possible routes of exposure to the above-mentioned contaminants are presented in Table 3. The use of proper respiratory equipment, as outlined in Section 7.0 of this HASP, will minimize the potential for exposure to airborne contamination. Exposure to contaminants through dermal and other routes will also be minimized through the use of protective clothing (Section 7.0), safe work practices (Section 6.0), and proper decontamination procedures (Section 12.0).

3.2 Physical Hazards

BCP investigation and remedial activities at the Tecumseh site may present the following physical hazards:

- The potential for physical injury during heavy construction equipment use, such as grading equipment, excavators, and tandem trucks.
- The potential for heat/cold stress to employees during the summer/winter months (see Section 10.0).
- The potential for slip and fall injuries due to rough, uneven terrain and/or open excavations.

These hazards represent only some of the possible means of injury that may be present during investigation and remedial activities at the Site. Since it is impossible to list all potential sources of injury, it shall be the responsibility of each individual to exercise proper care and caution during all phases of the work.

4.0 TRAINING

4.1 Site Workers

All personnel performing investigation and remedial activities at the Site (such as, but not limited to, equipment operators, general laborers, and supervisors) and who may be exposed to hazardous substances, health hazards, or safety hazards and their supervisors/managers responsible for the Site shall receive training in accordance with 29 CFR 1910.120(e) before they are permitted to engage in operations in the exclusion zone or contaminant reduction zone. This training includes an initial 40-hour Hazardous Waste Site Worker Protection Course, an 8-hour Annual Refresher Course subsequent to the initial 40-hour training, and 3 days of actual field experience under the direct supervision of a trained, experienced supervisor. Additional site-specific training shall also be provided by the SSHO prior to the start of field activities. A description of topics to be covered by this training is provided below.

4.1.1 Initial and Refresher Training

Initial and refresher training is conducted by a qualified instructor as specified under OSHA 29 CFR 1910.120(e)(5), and is specifically designed to meet the requirements of OSHA 29 CFR 1910.120(e)(3) and 1910.120(e)(8). The training covers, as a minimum, the following topics:

- OSHA HAZWOPER regulations.
- Site safety and hazard recognition, including chemical and physical hazards.
- Medical monitoring requirements.
- Air monitoring, permissible exposure limits, and respiratory protection level classifications.
- Appropriate use of personal protective equipment (PPE), including chemical compatibility and respiratory equipment selection and use.
- Work practices to minimize risk.
- Work zones and site control.
- Safe use of engineering controls and equipment.
- Decontamination procedures.
- Emergency response and escape.

- Confined space entry procedures.
- Heat and cold stress monitoring.
- Elements of a Health and Safety Plan.
- Spill containment.

Initial training also incorporates workshops for PPE and respiratory equipment use (Levels A, B and C), and respirator fit testing. Records and certification received from the course instructor documenting each employee's successful completion of the training identified above are maintained on file at TurnKey-Benchmark's Buffalo, NY office. Contractors and Subcontractors are required to provide similar documentation of training for all their personnel who will be involved in on-site work activities.

Any employee who has not been certified as having received health and safety training in conformance with 29 CFR 1910.120(e) is prohibited from working in the exclusion and contamination reduction zones, or to engage in any on-site work activities that may involve exposure to hazardous substances or wastes.

4.1.2 Site Training

Site workers are given a copy of the HASP and provided a site-specific briefing prior to the commencement of work to ensure that employees are familiar with the HASP and the information and requirements it contains. The site briefing shall be provided by the SSHO prior to initiating field activities and shall include:

- Names of personnel and alternates responsible for site safety and health.
- Safety, health and other hazards present on the Site.
- The Site lay-out including work zones and places of refuge.
- The emergency communications system and emergency evacuation procedures.
- Use of PPE.
- Work practices by which the employee can minimize risks from hazards.
- Safe use of engineering controls and equipment on the site.
- Medical surveillance, including recognition of symptoms and signs of over-exposure as described in Chapter 5 of this HASP.
- Decontamination procedures as detailed in Chapter 12 of this HASP.
- The emergency response plan as detailed in Chapter 15 of this HASP.
- Confined space entry procedures, if required, as detailed in Chapter 13 of this HASP.

- The spill containment program as detailed in Chapter 9 of this HASP.
- Site control as detailed in Chapter 11 of this HASP.

Supplemental health and safety briefings will also be conducted by the SSHO on an as-needed basis during the course of the work. Supplemental briefings are provided as necessary to notify employees of any changes to this HASP as a result of information gathered during ongoing site characterization and analysis. Conditions for which the SSHO may schedule additional briefings include, but are not limited to: a change in Site conditions (i.e., based on monitoring results); changes in the work schedule/plan; newly discovered hazards; and safety incidents occurring during Site work.

4.2 Supervisor Training

On-site safety and health personnel who are directly responsible for or who supervise the safety and health of workers engaged in hazardous waste operations (i.e., SSHO) shall receive, in addition to the appropriate level of worker training described in Section 4.1, above, 8 additional hours of specialized supervisory training, in compliance with 29 CFR 1910.120(e)(4).

4.3 Emergency Response Training

Emergency response training is addressed in Appendix A of this HASP, Emergency Response Plan.

4.4 Site Visitors

Each Contractor's SSHO will provide a site-specific briefing to all site visitors and other non-TurnKey/Benchmark personnel who enter the Site beyond the site entry point. The site-specific briefing will provide information about site hazards, the site layout including work zones and places of refuge, the emergency communications system and emergency evacuation procedures, and other pertinent safety and health requirements as appropriate.

Site visitors will not be permitted to enter the exclusion zone or contaminant reduction zones unless they have received the level of training required for site workers as described in Section 4.1.

5.0 MEDICAL MONITORING

Medical monitoring examinations are provided to TurnKey-Benchmark employees as stipulated under 29 CFR Part 1910.120(f). These exams include initial employment, annual and employment termination physicals for all TurnKey-Benchmark employees involved in hazardous waste site field operations. Post-exposure examinations are also provided for employees who may have been injured; received a health impairment; developed signs or symptoms of over-exposure to hazardous substances; or were accidentally exposed to substances at concentrations above the permissible exposure limits without necessary personal protective equipment. Such exams are performed as soon as possible following development of symptoms or the known exposure event.

Medical evaluations are performed by Health Works WNY, an occupational health care provider under contract with TurnKey-Benchmark. Health Works WNY's local facility is located at 1900 Ridge Road, West Seneca, New York 14224. The facility can be reached at (716) 823-5050 to schedule routine appointments or post-exposure examinations.

Medical evaluations are conducted according to the TurnKey-Benchmark Medical Monitoring Program and include an evaluation of the workers' ability to use respiratory protective equipment. The purpose of the medical evaluation is to determine an employee's fitness for duty on hazardous waste sites; and to establish baseline medical data. The examinations include:

- Occupational/medical history review.
- Physical exam, including vital sign measurement.
- Spirometry testing.
- Eyesight testing.
- Audio testing (minimum baseline and exit, annual for employees routinely exposed to greater than 85db).
- EKG (for employees >40 yrs age or as medical conditions dictate).
- Chest X-ray (baseline and exit, and every 5 years).
- Blood biochemistry (including blood count, white cell differential count, serum multiplastic screening).
- Medical certification of physical requirements (i.e., sight, musculoskeletal, cardiovascular) for safe job performance and to wear respiratory protection equipment.

In conformance with OSHA regulations, TurnKey-Benchmark will maintain and

preserve medical records for a period of 30 years following termination of employment. Employees are provided a copy of the physician's post-exam report, and have access to their medical records and analyses.

6.0 SAFE WORK PRACTICES

All TurnKey-Benchmark employees shall conform to the following safe work practices during all on-site work activities conducted within the exclusion and contamination reduction zones:

- Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand-to-mouth contact is strictly prohibited.
- The hands and face must be thoroughly washed upon leaving the work area and prior to engaging in any activity indicated above.
- Respiratory protective equipment and clothing must be worn by all personnel entering the site as required by the HASP or as modified by the site safety officer. Excessive facial hair (i.e., beards, long mustaches, or sideburns) that interferes with the satisfactory respirator-to-face seal is prohibited.
- Contact with surfaces/materials either suspected or known to be contaminated will be avoided to minimize the potential for transfer to personnel, cross contamination and need for decontamination.
- Medicine and alcohol can synergize the effects of exposure to toxic chemicals. Due to possible contraindications, use of prescribed drugs should be reviewed with the TurnKey-Benchmark occupational physician. Alcoholic beverage and illegal drug intake are strictly forbidden during the workday.
- All personnel shall be familiar with standard operating safety procedures and additional instructions contained in this Health and Safety Plan.
- On-site personnel shall use the "buddy" system. No one may work alone (i.e., out of earshot or visual contact with other workers) in the exclusion zone.
- Personnel and equipment in the contaminated area shall be minimized, consistent with effective site operations.
- All employees have the obligation to immediately report and if possible, correct unsafe work conditions.
- Use of contact lenses on-site will not be permitted. Spectacle kits for insertion into full-face respirators will be provided for TurnKey-Benchmark employees, as requested and required.

The recommended specific safety practices for working around the contractor's equipment (e.g., backhoes, bulldozers, excavators, etc.) are as follows:

- Although the Contractor and subcontractors are responsible for their equipment and safe operation of the site, TurnKey-Benchmark personnel are also

responsible for their own safety.

- Subsurface work will not be initiated without first clearing underground utility services.
- Heavy equipment should not be operated within 20 feet of overhead wires. This distance may be increased if windy conditions are anticipated or if lines carry high voltage. The site should also be sufficiently clear to ensure the project staff can move around the heavy machinery safely.
- Care should be taken to avoid overhead wires when moving heavy-equipment from location to location.
- Hard hats, safety boots, and safety glasses should be worn at all times in the vicinity of heavy equipment. Hearing protection is also recommended.
- The work site should be kept neat. This will prevent personnel from tripping and will allow for fast emergency exit from the site.
- Proper lighting must be provided when working at night.
- Construction activities should be discontinued during an electrical storm or severe weather conditions.
- The presence of combustible gases should be checked before igniting any open flame.
- Personnel shall stand upwind of any construction operation when not immediately involved in sampling/logging/observing activities.
- Personnel will not approach the edge of an unsecured trench/excavation closer than 2 feet.

7.0 PERSONAL PROTECTIVE EQUIPMENT

7.1 Equipment Selection

Personal protective equipment (PPE) will be donned when work activities may result in exposure to physical or chemical hazards beyond acceptable limits, and when such exposure can be mitigated through appropriate PPE. The selection of PPE will be based on an evaluation of the performance characteristics of the PPE relative to the requirements and limitations of the Site, the task-specific conditions and duration, and the hazards and potential hazards identified at the site.

Equipment designed to protect the body against contact with known or suspect chemical hazards are grouped into four categories according to the degree of protection afforded. These categories designated A through D consistent with USEPA Level of Protection designation, are:

- **Level A:** Should be selected when the highest level of respiratory, skin and eye protection is needed.
- **Level B:** Should be selected when the highest level of respiratory protection is needed, but a lesser level of skin protection is required. Level B protection is the minimum level recommended on initial site entries until the hazards have been further defined by on-site studies. Level B (or Level A) is also necessary for oxygen-deficient atmospheres.
- **Level C:** Should be selected when the types of airborne substances are known, the concentrations have been measured, and the criteria for using air-purifying respirators are met. In atmospheres where no airborne contaminants are present, Level C provides dermal protection only.
- **Level D:** Should not be worn on any site with elevated respiratory or skin hazards. This is generally a work uniform providing minimal protection.

OSHA requires the use of certain PPE under conditions where an immediate danger to life and health (IDLH) may be present. Specifically, OSHA 29 CFR 1910.120(g)(3)(iii) requires use of a positive pressure self-contained breathing apparatus, or positive pressure air-line respirator equipped with an escape air supply when chemical exposure levels present a substantial possibility of immediate serious injury, illness or death, or impair the ability to escape. Similarly, OSHA 29 CFR 1910.120(g)(3)(iv) requires donning totally encapsulating chemical protective suits (with a protection level equivalent to Level A protection) in

conditions where skin absorption of a hazardous substance may result in a substantial possibility of immediate serious illness, injury or death, or impair the ability to escape.

In situations where the types of chemicals, concentrations, and possibilities of contact are unknown, the appropriate level of protection must be selected based on professional experience and judgment until the hazards can be further characterized. The individual components of clothing and equipment must be assembled into a full protective ensemble to protect the worker from site-specific hazards, while at the same time minimizing hazards and drawbacks of the personal protective gear itself. Ensemble components are detailed below for levels A/B, C, and D protection.

7.2 Protection Ensembles

7.2.1 Level A/B Protection Ensemble

Level A/B ensembles include similar respiratory protection, however Level A provides a higher degree of dermal protection than Level B. Use of Level A over Level B is determined by: comparing the concentrations of identified substances in the air with skin toxicity data, and assessing the effect of the substance (by its measured air concentrations or splash potential) on the small area of the head and neck unprotected by Level B clothing.

The recommended PPE for level A/B is:

- Pressure-demand, full-face piece self-contained breathing apparatus (MSHA/-NIOSH approved) or pressure-demand supplied-air respirator with escape self-contained breathing apparatus (SCBA).
- Chemical-resistant clothing. For Level A, clothing consists of totally-encapsulating chemical resistant suit. Level B incorporates hooded one-or two-piece chemical splash suit.
- Inner and outer chemical resistant gloves.
- Chemical-resistant safety boots/shoes.
- Hardhat.

7.2.2 Level C Protection Ensemble

Level C protection is distinguished from Level B by the equipment used to protect the respiratory system, assuming the same type of chemical-resistant clothing is used. The main selection criterion for Level C is that conditions permit wearing an air-purifying device. The device (when required) must be an air-purifying respirator (MSHA/NIOSH approved) equipped with filter cartridges. Cartridges must be able to remove the substances encountered. Respiratory protection will be used only with proper fitting, training, and the approval of a qualified individual. In addition, an air-purifying respirator can be used only if: oxygen content of the atmosphere is at least 19.5% in volume; substances are identified and concentrations measured; substances have adequate warning properties; the individual passes a qualitative fit-test for the mask; and an appropriate cartridge/canister is used, and its service limit concentration is not exceeded.

Recommended PPE for Level C conditions includes:

- Full-face piece, air-purifying respirator equipped with MSHA and NIOSH approved organic vapor/acid gas/dust/mist combination cartridges or as designated by the SSHO.
- Chemical-resistant clothing (hooded, one or two-piece chemical splash suit or disposable chemical-resistant one-piece suit).
- Inner and outer chemical-resistant gloves.
- Chemical-resistant safety boots/shoes.
- Hardhat.

An air-monitoring program is part of all response operations when atmospheric contamination is known or suspected. It is particularly important that the air be monitored thoroughly when personnel are wearing air-purifying respirators. Continual surveillance using direct-reading instruments is needed to detect any changes in air quality necessitating a higher level of respiratory protection.

7.2.3 Level D Protection Ensemble

As indicated above, Level D protection is primarily a work uniform. It can be worn in areas where only boots can be contaminated, where there are no inhalable toxic substances and where the atmospheric contains at least 19.5% oxygen.

Recommended PPE for Level D includes:

- Coveralls.
- Safety boots/shoes.
- Safety glasses or chemical splash goggles.
- Hardhat.
- Optional gloves; escape mask; face shield.

7.2.4 Recommended Level of Protection for Site Tasks

Based on current information regarding both the contaminants suspected to be present at the Site and the various tasks that are included in the investigation and remedial activities, the minimum required Levels of Protection for these tasks shall be as identified in Table 4.

8.0 EXPOSURE MONITORING

8.1 General

Based on the results of historic sample analysis and the nature of the proposed work activities at the Site, the possibility exists that organic vapors and/or particulates may be released to the air during intrusive construction activities. Ambient breathing zone concentrations may at times, exceed the permissible exposure limits (PELs) established by OSHA for the individual compounds (see Table 2), in which case respiratory protection will be required. Respiratory and dermal protection may be modified (upgraded or downgraded) by the SSHO based upon real-time field monitoring data.

8.1.1 On-Site Work Zone Monitoring

TurnKey-Benchmark personnel will conduct routine, real-time air monitoring during all intrusive construction phases such as excavation, backfilling, drilling, etc. The work area will be monitored at regular intervals using a photo-ionization detector (PID), combustible gas meter and a particulate meter. Observed values will be recorded and maintained as part of the permanent field record.

Additional air monitoring measurements may be made by TurnKey-Benchmark personnel to verify field conditions during subcontractor oversight activities. Monitoring instruments will be protected from surface contamination during use. Additional monitoring instruments may be added if the situations or conditions change. Monitoring instruments will be calibrated in accordance with manufacturer's instructions before use.

8.1.2 Off-Site Community Air Monitoring

In addition to on-site monitoring within the work zone(s), monitoring at the down-wind portion of the Site perimeter will be conducted. This will provide a real-time method for determination of substantial vapor and/or particulate releases to the surrounding community as a result of ground intrusive investigation work.

Ground intrusive activities are defined by NYSDOH Appendix 1A Generic Community Air Monitoring Plan (Reference 4) and attached as Appendix C. Ground intrusive activities include soil/waste excavation and handling, test pitting or trenching, and

the installation of soil borings or monitoring wells. Non-intrusive activities include the collection of soil and sediment samples or the collection of groundwater samples from existing wells. Continuous monitoring is required for ground intrusive activities and periodic monitoring is required for non-intrusive activities. Periodic monitoring consists of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring while bailing a well, and taking a reading prior to leaving a sampling location. This may be upgraded to continuous if the sampling location is in close proximity to individuals not involved in the site activity (i.e., on a curb of a busy street). The action levels below will be used during periodic monitoring. This will provide a real-time method for determination of substantial vapor and/or particulate releases to the surrounding community because of site investigation work.

8.2 Monitoring Action Levels

8.2.1 On-Site Work Zone Action Levels

The PID, explosimeter, or other appropriate instrument(s), will be used by TurnKey-Benchmark personnel to monitor organic vapor concentrations as specified in this HASP. In addition, fugitive dust/particulate concentrations will be monitored during major soil intrusion using a real-time particulate monitor as specified in this plan. In the absence of such monitoring, appropriate respiratory protection for particulates shall be donned. Sustained readings obtained in the breathing zone may be interpreted (with regard to other site conditions) as follows for TurnKey-Benchmark personnel:

- Total atmospheric concentrations of unidentified vapors or gases ranging from 0 to 1 ppm above background on the PID) - Continue operations under Level D (see Appendix A).
- Total atmospheric concentrations of unidentified vapors or gases yielding sustained readings from >1 ppm to 5 ppm above background on the PID (vapors not suspected of containing high levels of chemicals toxic to the skin) - Continue operations under Level C (see Appendix A).
- Total atmospheric concentrations of unidentified vapors or gases yielding sustained readings of >5 ppm to 50 ppm above background on the PID - Continue operations under Level B (see Attachment 1), re-evaluate and alter (if possible) construction methods to achieve lower vapor concentrations.

- Total atmospheric concentrations of unidentified vapors or gases above 50 ppm on the PID - Discontinue operations and exit the work zone immediately.

The explosimeter will be used to monitor levels of both combustible gases and oxygen during RD activities involving deep excavation, if required. Action levels based on the instrument readings shall be as follows:

- Less than 10% LEL - Continue engineering operations with caution.
- 10-25% LEL - Continuous monitoring with extreme caution, determine source/cause of elevated reading.
- Greater than 25% LEL - Explosion hazard, evaluate source and leave the Work Zone.
- 19.5-21% oxygen - Proceed with extreme caution; attempt to determine potential source of oxygen displacement.
- Less than 19.5% oxygen - Leave work zone immediately.
- 21-25% oxygen - Continue engineering operations with caution.
- Greater than 25% oxygen - Fire hazard potential, leave Work Zone immediately.

The particulate monitor will be used to monitor respirable dust concentrations during all intrusive activities and during handling of site soil/fill. Action levels based on the instrument readings shall be as follows:

- Less than 50 $\mu g/m^3$ - Continue field operations.
- 50-150 $\mu g/m^3$ - Don dust/particulate mask or equivalent
- Greater than 150 $\mu g/m^3$ - Don dust/particulate mask or equivalent. Initiate engineering controls to reduce respirable dust concentration (i.e., wetting of excavated soils or tools at discretion of SSHO).

Readings with the organic vapor analyzer, combustible gas meter, and particulate monitor will be recorded and documented on the appropriate Project Field Forms. All instruments will be calibrated before use on a daily basis and the procedure will be documented on the appropriate Project Field Forms.

8.2.2 Community Air Monitoring Action Levels

In addition to the action levels prescribed in Section 8.2.1 for Benchmark personnel on-site, the following criteria shall also be adhered to for the protection of downwind receptors consistent with NYSDOH requirements (Appendix C):

- **ORGANIC VAPOR PERIMETER MONITORING:**
  - If the sustained ambient air concentration of organic vapors at the downwind perimeter of the exclusion zone exceeds 5 ppm above background, work activities will be halted and monitoring continued. If the sustained organic vapor decreases below 5 ppm over background, work activities can resume but more frequent intervals of monitoring, as directed by the SSHO, must be conducted.
  - If the sustained ambient air concentration of organic vapors at the downwind perimeter of the exclusion zone are greater than 5 ppm over background but less than 25 ppm, activities can resume provided that: the organic vapor level 200 feet downwind of the working site or half the distance to the nearest off-site residential or commercial structure, whichever is less, is below 5 ppm over background; and more frequent intervals of monitoring, as directed by the SSHO, are conducted.
  - If the sustained organic vapor level is above 25 ppm at the perimeter of the exclusion zone, the SSHO must be notified and work activities shut down. The SSHO will determine when re-entry of the exclusion zone is possible and will implement downwind air monitoring to ensure vapor emissions do not impact the nearest off-site residential or commercial structure at levels exceeding those specified in the ***Organic Vapor Contingency Monitoring Plan*** below. All readings will be recorded and will be available for New York State Department of Environmental Conservation (NYSDEC) and Department of Health (NYSDOH) personnel to review.

- **ORGANIC VAPOR CONTINGENCY MONITORING PLAN:**
  - If the sustained organic vapor level is greater than 5 ppm over background 200 feet downwind from the work area or half the distance to the nearest off-site residential or commercial property, whichever is less, all work activities must be halted.
  - If, following the cessation of the work activities or as the result of an emergency, sustained organic levels persist above 5 ppm above background 200 feet downwind or half the distance to the nearest off-site residential or commercial property from the work area, then the air quality must be

monitored within 20 feet of the perimeter of the nearest off-site residential or commercial structure (20-foot zone).

- If efforts to abate the emission source are unsuccessful and if sustained organic vapor levels approach or exceed 5 ppm above background within the 20-foot zone for more than 30 minutes, or are sustained at levels greater than 10 ppm above background for longer than one minute, then the ***Major Vapor Emission Response Plan*** (see below) will automatically be placed into effect.

o ***Major Vapor Emission Response Plan*:**

Upon activation, the following activities will be undertaken:

1. All Emergency Response Contacts as listed in this Health and Safety Plan and the Emergency Response Plan (Appendix A) will be advised.
2. The local police authorities will immediately be contacted by the SSHO and advised of the situation.
3. Frequent air monitoring will be conducted at 30-minute intervals within the 20-foot zone. If two sustained successive readings below action levels are measured, air monitoring may be halted or modified by the SSHO.

The following personnel are to be notified in the listed sequence in the event that a Major Vapor Emission Plan is activated:

Responsible Person	Contact	Phone Number
SSHO	Police	911
SSHO	State Emergency Response Hotline	(800) 457-7362

Additional emergency numbers are listed in the Emergency Response Plan included as Appendix A.

o **EXPLOSIVE VAPORS:**

- Sustained atmospheric concentrations of greater than 10% LEL in the work area - Initiate combustible gas monitoring at the downwind portion of the Site perimeter.
- Sustained atmospheric concentrations of greater than 10% LEL at the downwind Site perimeter – Halt work and contact local Fire Department.

- **Airborne Particulate Community Air Monitoring**

Respirable (PM-10) particulate monitoring will be performed on a continuous basis at the upwind and downwind perimeter of the exclusion zone. The monitoring will be performed using real-time monitoring equipment capable of measuring PM-10 and integrating over a period of 15-minutes for comparison to the airborne particulate action levels. The equipment will be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration will be visually assessed during all work activities. All readings will be recorded and will be available for NYSDEC and NYSDOH review. Readings will be interpreted as follows:

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter ($\mu g/m^3$) greater than the background (upwind perimeter) reading for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression provided that the downwind PM-10 particulate levels do not exceed 150 $\mu g/m^3$ above the upwind level and that visible dust is not migrating from the work area.
- If, after implementation of dust suppression techniques downwind PM-10 levels are greater than 150 $\mu g/m^3$ above the upwind level, work activities must be stopped and dust suppression controls re-evaluated. Work can resume provided that supplemental dust suppression measures and/or other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 $\mu g/m^3$ of the upwind level and in preventing visible dust migration.

Pertinent emergency response information including the telephone number of the Fire Department is included in the Emergency Response Plan (Appendix A).

9.0 SPILL RELEASE/RESPONSE

This chapter of the HASP describes the potential for and procedures related to spills or releases of known or suspected petroleum and/or hazardous substances on the Site. The purpose of this Section of the HASP is to plan appropriate response, control, counter-measures and reporting, consistent with OSHA requirements in 29 CFR 1910.120(b)(4)(ii)(J) and (j)(1)(viii). The spill containment program addresses the following elements:

- Potential hazardous material spills and available controls.
- Initial notification and evaluation.
- Spill response.
- Post-spill evaluation.

9.1 Potential Spills and Available Controls

An evaluation was conducted to determine the potential for hazardous material and oil/petroleum spills at this site. For the purpose of this evaluation, hazardous materials posing a significant spill potential are considered to be:

- CERCLA Hazardous Substances as identified in 40 CFR Part 302, where such materials pose the potential for release in excess of their corresponding Reportable Quantity (RQ).
- Extremely Hazardous Substances as identified in 40 CFR Part 355, Appendix A, where such materials pose the potential for release in excess of their corresponding RQ.
- Hazardous Chemicals as defined under Section 311(e) of the Emergency Planning and Community Right-To-Know Act of 1986, where such chemicals are present or will be stored in excess of 10,000 lbs.
- Toxic Chemicals as defined in 40 CFR Part 372, where such chemicals are present or will be stored in excess of 10,000 lbs.
- Chemicals regulated under 6NYCRR Part 597, where such materials pose the potential for release in excess of their corresponding RQ.

Oil/petroleum products are considered to pose a significant spill potential whenever the following situations occur:

- The potential for a "harmful quantity" of oil (including petroleum and non-petroleum-based fuels and lubricants) to reach navigable waters of the U.S. exists (40 CFR Part 112.4). Harmful quantities are considered by USEPA to be volumes

that could form a visible sheen on the water or violate applicable water quality standards.

- The potential for any amount of petroleum to reach any waters of NY State, including groundwater, exists. Petroleum, as defined by NY State in 6NYCRR Part 612, is a petroleum-based heat source, energy source, or engine lubricant/maintenance fluid.
- The potential for any release, to soil or water, of petroleum from a bulk storage facility regulated under 6NYCRR Part 612. A regulated petroleum storage facility is defined by NY State as a site having stationary tank(s) and intra-facility piping, fixtures and related equipment with an aggregate storage volume of 1,100 gallons or greater.

The evaluation indicates that, based on site history and decommissioning records, a hazardous material spill and/or a petroleum product spill is not likely to occur during Remedial efforts.

9.2 Initial Spill Notification and Evaluation

Any worker who discovers a hazardous substance or oil/petroleum spill will immediately notify the Project Manager and SSHO. The worker will, to the best of his/her ability, report the material involved, the location of the spill, the estimated quantity of material spilled, the direction/flow of the spill material, related fire/explosion incidents, if any, and any associated injuries. The Emergency Response Plan presented as Appendix A of this HASP will immediately be implemented if an emergency release has occurred.

Following initial report of a spill, the Project Manager will make an evaluation as to whether the release exceeds RQ levels. If an RQ level is exceeded, the Project Manager will notify the site owner and NYSDEC at 1-800-457-7362 within 2 hours of spill discovery. The Project Manager will also determine what additional agencies (e.g., USEPA) are to be contacted regarding the release, and will follow-up with written reports as required by the applicable regulations.

9.3 Spill Response

For all spill situations, the following general response guidelines will apply:

- Only those personnel involved in overseeing or performing containment operations will be allowed within the spill area. If necessary, the area will be

roped, ribboned, or otherwise blocked off to prevent unauthorized access.

- Appropriate PPE, as specified by the SSHO, will be donned before entering the spill area.
- Ignition points will be extinguished/removed if fire or explosion hazards exist.
- Surrounding reactive materials will be removed.
- Drains or drainage in the spill area will be blocked to prevent inflow of spilled materials or applied materials.

For minor spills, the Contractor will maintain a Spill Control and Containment Kit in the Field Office or other readily accessible storage location. The kit will consist of, at a minimum, a 50 lb. bag of "speedy dry" granular absorbent material, absorbent pads, shovels, empty 5-gallon pails and an empty open-top 55-gallon drum. Spilled materials will be absorbed, and shoveled into a 55-gallon drum for proper disposal (NYSDEC approval will be secured for on-site treatment of the impacted soils/absorbent materials, if applicable). Impacted soils will be hand-excavated to the point that no visible signs of contamination remains, and will be drummed with the absorbent.

In the event of a major release or a release that threatens surface water, a spill response contractor will be called to the site. The response contractor may use heavy equipment (i.e., excavator, backhoe, etc.) to berm the soils surrounding the spill site or create diversion trenching to mitigate overland migration or release to navigable waters. Where feasible, pumps will be used to transfer free liquid to storage containers. Spill control/cleanup contractors in the Western New York area that may be contacted for assistance include:

- The Environmental Service Group of NY, Inc.: (716) 695-6720
- Op-Tech: (716) 873-7680
- Environmental Products and Services, Inc.: (716) 447-4700

9.4 Post-Spill Evaluation

If a reportable quantity of hazardous material or oil/petroleum is spilled as determined by the Project Manager, a written report will be prepared as indicated in Section 9.2. The report will identify the root cause of the spill, type and amount of material released, date/time of release, response actions, agencies notified and/or involved in cleanup, and

procedures to be implemented to avoid repeat incidents. In addition, all re-useable spill cleanup and containment materials will be decontaminated, and spill kit supplies/disposable items will be replenished.

10.0 HEAT/COLD STRESS MONITORING

Since some of the work activities at the Site will be scheduled for both the summer and winter months, measures will be taken to minimize heat/cold stress to TurnKey-Benchmark employees. The SSHO and/or his or her designee will be responsible for monitoring TurnKey-Benchmark field personnel for symptoms of heat/cold stress.

10.1 Heat Stress Monitoring

Personal protective equipment may place an employee at risk of developing heat stress, a common and potentially serious illnesses often encountered at construction, landfill, waste disposal, industrial or other unsheltered sites. The potential for heat stress is dependent on a number of factors, including environmental conditions, clothing, workload, physical conditioning, and age. Personal protective equipment may severely reduce the body's normal ability to maintain temperature equilibrium (via evaporation and convection), and require increased energy expenditure due to its bulk and weight.

Proper training and preventive measures will mitigate the potential for serious illness. Heat stress prevention is particularly important because once a person suffers from heat stroke or heat exhaustion, that person may be predisposed to additional heat related illness. To avoid heat stress, the following steps should be taken:

- Adjust work schedules.
- Modify work/rest schedules according to monitoring requirements.
- Mandate work slowdowns as needed.
- Perform work during cooler hours of the day if possible or at night if adequate lighting can be provided.
- Provide shelter (air-conditioned, if possible) or shaded areas to protect personnel during rest periods.
- Maintain worker's body fluids at normal levels. This is necessary to ensure that the cardiovascular system functions adequately. Daily fluid intake must approximately equal the amount of water lost in sweat (i.e., eight fluid ounces must be ingested for approximately every 1 lb of weight lost). The normal thirst mechanism is not sensitive enough to ensure that enough water will be consumed to replace lost perspiration. When heavy sweating occurs, workers should be encouraged to drink more.
- Train workers to recognize the symptoms of heat related illness.

Heat-Related Illness - Symptoms:

- Heat rash may result from continuous exposure to heat or humid air.
- Heat cramps are caused by heavy sweating with inadequate electrolyte replacement. Signs and symptoms include: muscle spasms; pain in the hands, feet, and abdomen.
- Heat exhaustion occurs from increased stress on various body organs including inadequate blood circulation due to cardiovascular insufficiency or dehydration. Signs and symptoms include: pale, cool, moist skin; heavy sweating; dizziness; nausea; fainting.
- Heat stroke is the most serious form of heat stress. Temperature regulation fails and the body temperature rises to critical levels. Immediate action must be taken to cool the body before serious injury and death occur. Competent medical help must be obtained. Signs and symptoms are: red, hot, usually dry skin; lack of or reduced perspiration; nausea; dizziness and confusion; strong, rapid pulse; coma.

The monitoring of personnel wearing protective clothing should commence when the ambient temperature is 70 degrees Fahrenheit or above. For monitoring the body's recuperative ability to excess heat, one or more of the following techniques should be used as a screening mechanism.

- Heart rate may be measured by the radial pulse for 30 seconds as early as possible in the resting period. The rate at the beginning of the rest period should not exceed 100 beats per minute. If the rate is higher, the next work period should be shortened by 10 minutes (or 33%), while the length of the rest periods stay the same. If the pulse rate is 100 beats per minute at the beginning of the nest rest period, the following work cycle should be further shortened by 33%.
- Body temperature may be measured orally with a clinical thermometer as early as possible in the resting period. Oral temperature at the beginning of the rest period should not exceed 99.6 degrees Fahrenheit. If it does, the next work period should be shortened by 10 minutes (or 33%), while the length of the rest period remains the same. However, if the oral temperature exceeds 99.6 degrees Fahrenheit at the beginning of the next period, the work cycle may be further shortened by 33%. Oral temperature should be measured at the end of the rest period to make sure that it has dropped below 99.6 degrees Fahrenheit. No TurnKey-Benchmark employee will be permitted to continue wearing semi-permeable or impermeable garments when his/her oral temperature exceeds 100.6 degrees Fahrenheit.

10.2 Cold Stress Monitoring

Exposure to cold conditions may result in frostbite or hypothermia, each of which progresses in stages as shown below.

- **Frostbite** occurs when body tissue (usually on the extremities) begins to freeze. The three states of frostbite are:

  1) **Frost nip** - This is the first stage of the freezing process. It is characterized by a whitened area of skin, along with a slight burning or painful sensation. Treatment consists of removing the victim from the cold conditions; removal of boots and gloves; soaking the injured part in warm water (102 to 108 degrees Fahrenheit); and drinking a warm beverage. Do not rub skin to generate friction/ heat.

  2) **Superficial Frostbite** - This is the second stage of the freezing process. It is characterized by a whitish gray area of tissue, which will be firm to the touch but will yield little pain. The treatment is identical for Frost nip.

  3) **Deep Frostbite** - In this final stage of the freezing process the affected tissue will be cold, numb and hard and will yield little to no pain. Treatment is identical to that for Frost nip.

- **Hypothermia** is a serious cold stress condition occurring when the body loses heat at a rate faster than it is produced. If untreated, hypothermia may be fatal. The stages of hypothermia may not be clearly defined or visible at first, but generally include:

  1) Shivering
  2) Apathy (i.e., a change to an indifferent or uncaring mood)
  3) Unconsciousness
  4) Bodily freezing

  Employees exhibiting signs of hypothermia should be treated by medical professionals. Steps that can be taken while awaiting help include:

  1) Remove the victim from the cold environment and remove wet or frozen clothing. (Do this carefully as frostbite may have started.)
  2) Perform active re-warming with hot liquids for drinking (Note: do not give the victim any liquid containing alcohol or caffeine) and a warm water bath (102 to 108 degrees Fahrenheit).
  3) Perform passive re-warming with a blanket or jacket wrapped around

the victim.

In any potential cold stress situation, it is the responsibility of the Site Health and Safety Officer to encourage the following:

- Education of workers to recognize the symptoms of frostbite and hypothermia.
- Workers should dress warmly, with more layers of thin clothing as opposed to one thick layer.
- Personnel should remain active and keep moving.
- Personnel should be allowed to take shelter in a heated area, as necessary.
- Personnel should drink warm liquids (no caffeine or alcohol if hypothermia has set in).
- For monitoring the body's recuperation from excess cold, oral temperature recordings should occur:
    - At the Site Safety Technicians discretion when suspicion is based on changes in a worker's performance or mental status.
    - At a workers request.
    - As a screening measure, two times per shift, under unusually hazardous conditions (e.g., wind chill less than 20 degrees Fahrenheit or wind chill less than 30 degrees Fahrenheit with precipitation).
    - As a screening measure whenever anyone worker on site develops hypothermia.

Any person developing moderate hypothermia (a core body temperature of 92 degrees Fahrenheit) will not be allowed to return to work for 48 hours without the recommendation of a qualified medical doctor.

11.0 WORK ZONES AND SITE CONTROL

Work zones around the areas designated for construction activities will be established on a daily basis and communicated to all employees and other site users by the SSHO. It shall be each Contractor's SSHO's responsibility to ensure that all site workers are aware of the work zone boundaries and to enforce proper procedures in each area. The zones will include:

- Exclusion Zone ("Hot Zone"): The area where contaminated materials may be exposed, excavated, or handled and all areas where contaminated equipment or personnel may travel. The zone will be delineated by flagging tape. All personnel entering the Exclusion Zone must wear the prescribed level of personal protective equipment identified in Section 7.
- Contamination Reduction Zone: The zone where decontamination of personnel and equipment takes place. Any potentially contaminated clothing, equipment, and samples must remain in the Contamination Reduction Zone until decontaminated.
- Support Zone: The part of the site that is considered non-contaminated or "clean." Support equipment will be located in this zone, and personnel may wear normal work clothes within this zone.

In the absence of other task-specific work zone boundaries established by the SSHO, the following boundaries will apply to all investigation and construction activities involving disruption or handling of site soils or groundwater:

- Exclusion Zone: 50 foot radius from the outer limit of the sampling/construction activity.
- Contaminant Reduction Zone: 100 foot radius from the outer limit of the sampling/construction activity.
- Support Zone: Areas outside the Contaminant Reduction Zone.

Access of non-essential personnel to the Exclusion and Contamination Reduction Zones will be strictly controlled by the SSHO. Only personnel who are essential to the completion of the task will be allowed access to these areas if they are wearing the prescribed level of protection. Entrance of all personnel must be approved by the SSHO.

The SSHO will maintain a Health and Safety Logbook containing the names of TurnKey-Benchmark workers and their level of protection. The zone boundaries may be

changed by the SSHO as environmental conditions warrant, and to respond to the necessary changes in work locations on-site.

12.0 DECONTAMINATION

12.1 Decontamination for TurnKey-Benchmark Employees

The degree of decontamination required is a function of a particular task and the environment within which it occurs. The following decontamination procedure will remain flexible, thereby allowing the decontamination crew to respond appropriately to the changing environmental conditions that may arise at the site. All TurnKey-Benchmark personnel on-site shall follow the procedure below, or the Contractor's procedure (if applicable), whichever is more stringent.

Station 1 - Equipment Drop: Deposit visibly contaminated (if any) re-useable equipment used in the contamination reduction and exclusion zones (tools, containers, monitoring instruments, radios, clipboards, etc.) on plastic sheeting.

Station 2 - Boots and Gloves Wash and Rinse: Scrub outer boots and outer gloves.

Station 3 - Tape, Outer Boot, and Glove Removal: Remove tape, outer boots, and gloves. Deposit tape and gloves in waste disposal container.

Station 4 - Canister or Mask Change: If worker leaves exclusive zone to change canister (or mask), this is the last step in the decontamination procedure. Worker's canister is exchanged, new outer gloves and boot cover donned, and worker returns to duty.

Station 5 - Outer Garment/Face Piece Removal: Protective suit removed and deposited in separate container provided by Contractor. Face piece or goggles are removed if used. Avoid touching face with fingers. Face piece and/or goggles deposited on plastic sheet. Hard hat removed and placed on plastic sheet.

Station 6 - Inner Glove Removal: Inner gloves are the last personal protective equipment to be removed. Avoid touching the outside of the gloves with bare fingers. Dispose of these gloves in waste disposal container.

Following PPE removal, personnel shall wash hands, face, and forearms with absorbent wipes. If field activities proceed for six consecutive months or longer, shower facilities will be provided for worker use in accordance with OSHA 29 CFR 1910.120(n).

12.2 Decontamination for Medical Emergencies

In the event of a minor, non-life threatening injury, personnel should follow the decontamination procedures as defined, and then administer first-aid.

In the event of a major injury or other serious medical concern (e.g., heat stroke), immediate first-aid is to be administered and the victim transported to the hospital in lieu of further decontamination efforts unless exposure to a site contaminant would be considered "Immediately Dangerous to Life or Health."

12.3 Decontamination of Field Equipment

Decontamination of heavy equipment will be conducted by the Contractor in accordance with his approved Health and Safety Plan in the Contamination Reduction Zone. As a minimum, this will include manually removing heavy soil contamination, followed by steam cleaning on an impermeable pad.

Decontamination of all tools used for sample collection purposes will be conducted by TurnKey-Benchmark personnel. It is expected that all tools will be constructed of nonporous, nonabsorbent materials (i.e., metal), which will aid in the decontamination effort. Any tool or part of a tool made of porous, absorbent material (i.e., wood) will be placed into suitable containers and prepared for disposal.

Decontamination of bailers, split-spoons, spatula knives, and other tools used for environmental sampling and examination shall be as follows:

- Disassemble the equipment.
- Wash with water to remove all visible foreign matter.
- Wash with detergent.
- Rinse all parts with distilled-deionized water.
- Allow to air dry.
- Wrap all parts in aluminum foil or polyethylene.

13.0 CONFINED SPACE ENTRY

OSHA 29 CFR 1910.146 identifies a confined space as a space that is large enough and so configured that an employee can physically enter and do assigned work, has limited or restricted means for entry and exit, and is not intended for continuous employee occupancy. Confined spaces include, but are not limited to, trenches, storage tanks, process vessels, pits, sewers, tunnels, underground utility vaults, pipelines, sumps, wells, and excavations.

Confined space entry by TurnKey-Benchmark employees is not anticipated to be necessary to complete the investigation and remedial activities identified in Section 2.0. In the event that the scope of work changes or confined space entry appears necessary, the Project Manager will be consulted to determine if feasible engineering alternatives to confined space entry can be implemented. If confined space entry by TurnKey-Benchmark employees cannot be avoided through reasonable engineering measures, task-specific confined space entry procedures will be developed and a confined-space entry permit will be issued through TurnKey-Benchmark's corporate Health and Safety Director. TurnKey-Benchmark employees shall not enter a confined space without these procedures and permits in place.

14.0 FIRE PREVENTION AND PROTECTION

14.1 General Approach

Recommended practices and standards of the National Fire Protection Association (NFPA) and other applicable regulations will be followed in the development and application of Project Fire Protection Programs. When required by regulatory authorities, the project management will prepare and submit a Fire Protection Plan for the approval of the contracting officers, authorized representative or other designated official. Essential considerations for the Fire Protection Plan will include:

- Proper site preparation and safe storage of combustible and flammable materials.
- Availability of coordination with private and public fire authorities.
- Adequate job-site fire protection and inspections for fire prevention.
- Adequate indoctrination and training of employees.

14.2 Equipment and Requirements

Fire extinguishers will be provided by each Contractor and are required on all heavy equipment and in each field trailer. Fire extinguishers will be inspected, serviced, and maintained in accordance with the manufacturer's instructions. As a minimum, all extinguishers shall be checked monthly and weighed semi-annually, and recharged if necessary. Recharge or replacement shall be mandatory immediately after each use.

14.3 Flammable and Combustible Substances

All storage, handling, or use of flammable and combustible substances will be under the supervision of qualified persons. All tanks, containers and pumping equipment, whether portable or stationary, used for the storage and handling of flammable and combustible liquids, will meet the recommendations of the NFPA.

14.4 Hot Work

If the scope of work necessitates welding or blowtorch operation, the hot work permit presented in Appendix B will be completed by the SSHO and reviewed/issued by the Project Manager.

15.0 EMERGENCY INFORMATION

In accordance with OSHA 29 CFR Part 1910, an Emergency Response Plan is attached to this HASP as Appendix A. The hospital route map is presented as Figure A-1.

16.0 REFERENCES

1. New York State Department of Health. 2002. *Generic Community Air Monitoring Plan, Appendix 1A, DER-10 Technical Guidance for Site Investigation and Remediation.* May 2010.

TABLES

TABLE 1

CONSTITUENTS OF POTENTIAL CONCERN

Site-Wide Health and Safety Plan
Tecumseh Redevelopment BCP Sites
Lackawanna, New York

Parameter[1]	CAS No.	Maximum Detected Concentration [2]			
		Groundwater [3] (mg/L)	Surface Soil/Fill (mg/kg)	Sub-Surface Soil/Fill (mg/kg)	LNAPL (mg/kg)
Volatile Organic Compounds (VOCs):					
Benzene	71-43-2	570	0.0047	2800	14,000
Ethylbenzene	100-41-4	25	*Note 4*	170	4,600
Toluene	108-88-3	77	0.001	1700	5,700
Xylene, Total	1330-20-7	390	0.0017	1100	31,000
Polycyclic Aromatic Hydrocarbons (PAHs):					
Acenaphthene	83-32-9	0.36	*Note 4*	*Note 4*	400
Acenaphthylene	208-96-8	0.09	*Note 4*	*Note 4*	570
Anthracene	120-12-7	0.27	0.23	*Note 4*	240
Benz(a)anthracene	56-55-3	0.28	0.7	*Note 4*	27
Benzo(a)pyrene	50-32-8	0.23	0.56	*Note 4*	ND
Benzo(b)fluoranthene	205-99-2	0.069	0.86	*Note 4*	12
Benzo(ghi)perylene	191-24-2	0.033	0.35	*Note 4*	ND
Benzo(k)fluoranthene	207-08-9	0.071	0.38	*Note 4*	ND
Chrysene	218-01-9	0.26	0.67	*Note 4*	17
Dibenz(ah)anthracene	53-70-3	0.022	0.08	*Note 4*	ND
Fluoranthene	206-44-0	0.76	1.3	*Note 4*	200
Fluorene	86-73-7	1.7	*Note 4*	*Note 4*	9,600
Indeno(1,2,3-cd)pyrene	193-39-5	0.04	0.36	*Note 4*	ND
Naphthalene	91-20-3	280	0.29	1100	49,000
Phenanthrene	85-01-8	0.94	0.87	*Note 4*	800
Pyrene	129-00-0	0.41	0.87	*Note 4*	220
Inorganic Compounds:					
Arsenic	7440-38-2	70.6	30.5	17.7	28.2
Cadmium	7440-43-9	20.6	9.7	3.7	0.03
Chromium	7440-47-3	306	1190	508	1.7
Lead	7439-92-1	26.3	160	224	0.34
Mercury	7439-97-6	0.22	4.2	0.99	ND
Polychlorinated Biphenyls (PCBs):					
Aroclor 1242	53469-21-9	*Note 4*	*Note 4*	*Note 4*	2
Aroclor 1260	11096-82-5	*Note 4*	*Note 4*	*Note 4*	3.3

Notes:

1. Constituents were identified as parameters of interest during the RFI for the Benzol Plant Tank Storage Area (SWMU P-11).
2. Maximum detected concentrations as presented in the Final RFI Report for the Benzol Plant Tank Storage Area (SWMU P-11).
3. Groundwater analytical data collected from the Coke Oven Area of the Former Bethlehem Steel Lackawanna Coke Division Site.
4. Compounds with a detection frequency greater than 5% and a maximum concentration greater than the screening criteria were retained as potential parameters of interest during the RFI (Reference 1).

Acronyms:

NA = Not analyzed.
ND = Parameter not detected above method detection limits.

TABLE 2

TOXICITY DATA FOR CONSTITUENTS OF POTENTIAL CONCERN

Site-Wide Health and Safety Plan
Tecumseh Redevelopment BCP Sites
Lackawanna, New York

Parameter	Synonyms	CAS No.	Code	Concentration Limits [1]		
				PEL	TLV	IDLH
Volatile Organic Compounds (VOCs): ppm						
Benzene	Benzol, Phenyl hydride	71-43-2	Ca	1	0.5	500
Ethylbenzene	Ethylbenzol, Phenylethane	100-41-4	*none*	100	100	800
Toluene	Methyl benzene, Methyl benzol	108-88-3	C-300	200	50	500
Xylene, Total	o-, m-, p-isomers	1330-20-7	*none*	100	100	900
Polycyclic Aromatic Hydrocarbons (PAHs) [2] : ppm						
Acenaphthene	*none*	83-32-9	*none*	--	--	--
Acenaphthylene	*none*	208-96-8	*none*	--	--	--
Anthracene	*none*	120-12-7	*none*	--	--	--
Benz(a)anthracene	*none*	56-55-3	*none*	--	--	--
Benzo(a)pyrene	*none*	50-32-8	*none*	--	--	--
Benzo(b)fluoranthene	*none*	205-99-2	*none*	--	--	--
Benzo(ghi)perylene	*none*	191-24-2	*none*	--	--	--
Benzo(k)fluoranthene	*none*	207-08-9	*none*	--	--	--
Chrysene	*none*	218-01-9	*none*	--	--	--
Dibenz(ah)anthracene	*none*	53-70-3	*none*	--	--	--
Fluoranthene	*none*	206-44-0	*none*	--	--	--
Fluorene	*none*	86-73-7	*none*	--	--	--
Indeno(1,2,3-cd)pyrene	*none*	193-39-5	*none*	--	--	--
Naphthalene	Naphthalin, Tar camphor, White tar	91-20-3	*none*	10	10	250
Phenanthrene	*none*	85-01-8	*none*	--	--	--
Pyrene	*none*	129-00-0	*none*	--	--	--
Polychlorinated Inorganic Compounds: mg/m [3]						
Aroclor 1242	Chlorodiphenyl, 42% chlorine	53469-21-9	Ca	--	--	--
Aroclor 1260	Chlorodiphenyl, 60% chlorine	11096-82-5	*none*	--	--	--
Inorganic Compounds: mg/m [3]						
Arsenic	*none*	7440-38-2	Ca	0.01	0.01	5
Cadmium	*none*	7440-43-9	Ca	0.005	0.01	9
Chromium	*none*	7440-47-3	*none*	1	0.5	250
Lead	*none*	7439-92-1	*none*	0.05	0.15	100
Mercury	*none*	7439-97-6	C-0.1	0.1	0.05	10

Notes:

1. Concentration limits as reported by NIOSH Pocket Guide to Chemical Hazards, February 2004 (NIOSH Publication No. 97-140, fourth printing with changes and updates).
2. Individual parameters listed are those most commonly detected at steel/coke manufacturing sites.
3. " -- " = concentration limit not available; exposure should be minimized to the extent feasible through appropriate engineering controls & PPE.

Explanation:

Ca = NIOSH considers constituent to be a potential occupational carcinogen.
C-## = Ceiling Level equals the maximum exposure concentration allowable during the work day.
IDLH = Immediately Dangerous to Life or Health.
ND indicates that an IDLH has not as yet been determined.
TLV = Threshold Limit Value, established by American Conference of Industrial Hygienists (ACGIH), equals the maximum exposure concentration allowable for 8 hours/day @ 40 hours/week.
TLVs are the amounts of chemicals in the air that almost all healthy adult workers are predicted to be able to tolerate without adverse effects. There are three types.
TLV-TWA (TLV-Time-Weighted Average) which is averaged over the normal eight-hour day/forty-hour work week. (Most TLVs.)
TLV-STEL or Short Term Exposure Limits are 15 minute exposures that should not be exceeded for even an instant. It is not a stand alone value but is accompanied by the TLV-TWA.
It indicates a higher exposure that can be tolerated for a short time without adverse effect as long as the total time weighted average is not exceded.
TLV-C or Ceiling limits are the concentration that should not be exceeded during any part of the working exposure.
Unless the initials "STEL" or "C" appear in the Code column, the TLV value should be considered to be the eight-hour TLV-TWA.
PEL = Permissible Exposure Limit, established by OSHA, equals the maximium exposure conconcentration allowable for 8 hours per day @ 40 hours per week

TABLE 3

POTENTIAL ROUTES OF EXPOSURE TO CONSTITUENTS OF POTENTIAL CONCERN

Site-Wide Health and Safety Plan
Tecumseh Redevelopment BCP Sites
Lackawanna, New York

Activity [1]	Direct Contact with Soil/Fill	Inhalation of Vapors or Dust	Direct Contact with Groundwater
1. Soil/Fill Excavation	x	x	
2. Soil/Fill Documentation Sampling	x	x	
3. Surface Water Management			x
4. Slag/Fill Subgrade Preparation	x	x	
5. Cover Soil Placement	x	x	
6. Groundwater Monitoring Well Installation/Sampling	x	x	x
7. Groundwater Remediation	x	x	x

Notes:
1. Activity as described in Section 1.5 of the Health and Safety Plan.

TABLE 4

REQUIRED LEVELS OF PROTECTION
FOR BCP INVESTIGATION AND REMEDIAL ACTIVITIES

Site-Wide Health and Safety Plan
Tecumseh Redevelopment BCP Sites
Lackawanna, New York

Activity	Respiratory Protection [1]	Clothing	Gloves [2]	Boots [2, 3]	Other Required PPE/Modifications [2, 4]
1. Soil/Fill Excavation	Level D (upgrade to Level C if necessary)	Work Uniform or Tyvek	L	outer: L inner: STSS	HH SGSS
2. Soil/Fill Documentation Sampling	Level D (upgrade to Level C if necessary)	Work Uniform or Tyvek	L	outer: L inner: STSS	HH SGSS
3. Surface Water Management	Level D (upgrade to Level C if necessary)	Work Uniform or Tyvek	L/N	outer: L inner: STSS	HH SGSS
4. Slag/Fill Subgrade Preparation	Level D (upgrade to Level C if necessary)	Work Uniform or Tyvek	L	outer: L inner: STSS	HH SGSS
5. Cover Soil Placement	Level D (upgrade to Level C if necessary)	Work Uniform or Tyvek	L	outer: L inner: STSS	HH SGSS
6. Groundwater Monitoring Well Installation/Sampling	Level D (upgrade to Level C if necessary)	Work Uniform or Tyvek	L/N	outer: L inner: STSS	HH SGSS
7. Groundwater Remediation	Level D (upgrade to Level C if necessary)	Work Uniform or Tyvek	L	outer: L inner: STSS	HH SGSS

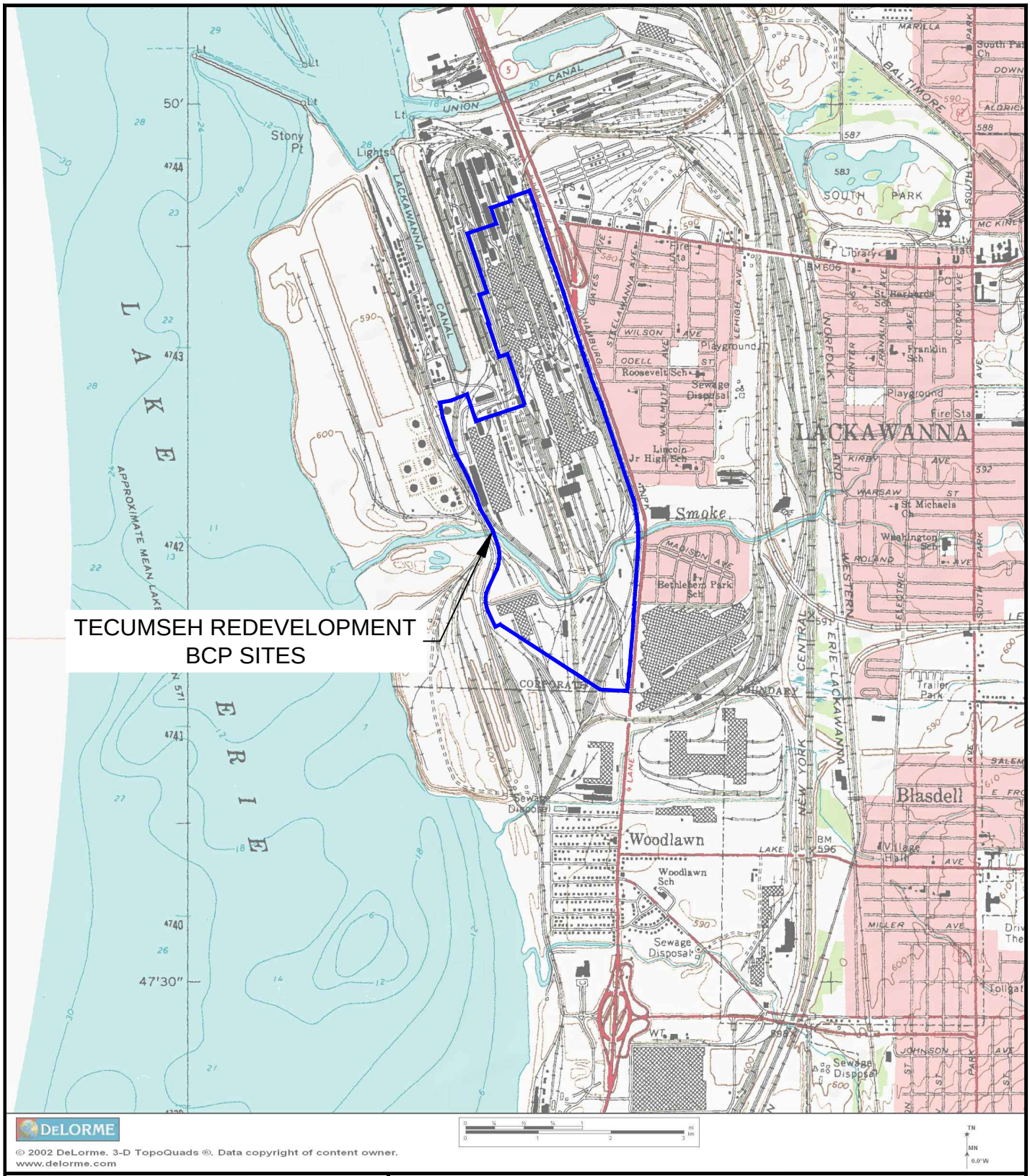
Notes:

1. Respiratory equipment shall conform to guidelines presented in Section 7.0 of this HASP. The Level C requirement is an air-purifying respirator equiped with organic compound/acid gas/dust cartridge.
2. HH = hardhat; L= Latex; L/N = latex inner glove, nitrile outer glove; N = Nitrile; S = Saranex; SG = safety glasses; SGSS = safety glasses with sideshields; STSS = steel toe safety shoes.
3. Latex outer boot (or approved overboot) required whenever contact with contaminated materials may occur. SSHO may downgrade to STSS (steel-toed safety shoes) if contact will be limited to cover/replacement soils.
4. Dust masks shall be donned as directed by the SSHO (site safety and health officer) or site safety technician whenever potentially contaminated airborne particulates (i.e., dust) are present in significant amounts in the breathing zone. Goggles may be substituted with safety glasses w/side-shields whenever contact with contaminated liquids is not anticipated.

FIGURES

F:\CAD\TurnKey\Tecumseh Redevelopment\Brownfield Cleanup Program (BCP)\Site-Wide HASP\Figure 1; Site Location and Vicinity Map.dwg

FIGURE 1



TURNKEY ENVIRONMENTAL RESTORATION, LLC
2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0635

SITE LOCATION & VICINITY MAP

SITE-WIDE HEALTH AND SAFETY PLAN

TECUMSEH REDEVELOPMENT BCP SITES
LACKAWANNA, NEW YORK

PROJECT NO.: 0071-012-322

DATE: JULY 2013

DRAFTED BY: BLR

F:\CAD\Turnkey\Tecumseh Redevelopment\Brownfield Cleanup Program (BCP)\Site Wide HASP\Figure 2 Site Plan.dwg

STEEL WINDS I
± 29.01 ACRES

PHASE IA BUSINESS PARK
± 12.92 ACRES

PHASE I BUSINESS PARK
± 101.85 ACRES

PHASE III BUSINESS PARK
± 150.18 ACRES

PHASE II BUSINESS PARK
± 142.17 ACRES

U.S.A.C.E.
SEDIMENT DISPOSAL AREA

GATEWAY TRADE
CENTER (G.T.C.)

SOUTH BUFFALO
RAILROAD COMPANY

BUFFALO
SPECIALTY
STEEL

REPUBLIC ENGINEERED
PRODUCTS, INC.
(BAR MILL)

SOUTH BUFFALO
RAILROAD COMPANY

BUFFALO CRUSHED STONE

LAKE ERIE

OPEN WATER

LAND

BUFFALO
OUTER HARBOR

GATEWAY METROPARK SHIP CANAL

SMOKES CREEK

TOWN OF HAMBURG
CITY OF LACKAWANNA

CITY OF LACKAWANNA
CITY OF BUFFALO

VILLAGE OF BLASDELL
CITY OF LACKAWANNA

LEGEND:

- TECUMSEH PROPERTY BOUNDARY
- EXISTING BUILDING / STRUCTURE
- RAILROAD TRACK
- SWMU P-07 — APPROXIMATE LOCATION OF SOLID WASTE MANAGEMENT UNIT (SWMU) - REQUIRES FURTHER ASSESSMENT
- SWMU P-64 — APPROXIMATE LOCATION OF SOLID WASTE MANAGEMENT UNIT (SWMU) - REQUIRES NO FURTHER ACTION
- CMS SITE BOUNDARY
- BROWNFIELD CLEANUP PROGRAM AREAS
- APPROXIMATE BOUNDARY OF SWMU
- WT-08 — EXISTING STEEL WINDS I FACILITY WIND TURBINE (WT)

500' 0' 500' 1000'

SCALE: 1 INCH = 500 FEET
SCALE IN FEET
(approximate)

TURNKEY ENVIRONMENTAL RESTORATION, LLC
2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0635

JOB NO.: 0071-012-322

REVISIONS

NO.	BY	DATE	REMARKS

DRAWN BY: BLR
DATE: JULY 2013
CHECKED BY:
APPROVED BY:

DISCLAIMER:
PROPERTY OF BENCHMARK EES, PLLC. IMPORTANT: THIS MAP IS PROVIDED FOR INFORMATIONAL PURPOSES AND AS SUCH IS SUBJECT TO RECALL AT ANY TIME. INFORMATION CONTAINED HEREON SHALL NOT BE REPRODUCED IN ANY MEDIUM OR FORM FOR THE BENEFIT OF PARTIES OTHER THAN THOSE FOR WHICH IT WAS PREPARED WITHOUT THE WRITTEN CONSENT OF BENCHMARK EES, PLLC.

SEAL

SITE PLAN

SITE-WIDE HEALTH AND SAFETY PLAN
TECUMSEH REDEVELOPMENT BCP SITES
LACKAWANNA, NEW YORK

FIGURE 2

APPENDIX A

EMERGENCY RESPONSE PLAN

EMERGENCY RESPONSE PLAN
for
BROWNFIELD CLEANUP PROGRAM

TECUMSEH REDEVELOPMENT BCP SITES
LACKAWANNA, NEW YORK

April 2010 0071-012-322
Revised July 2013

TECUMSEH REDEVELOPMENT BCP SITES
SITE-WIDE HEALTH AND SAFETY PLAN
APPENDIX A: EMERGENCY RESPONSE PLAN

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Figure A-1 Hospital Route Map

1.0 GENERAL

This report presents the site-specific Emergency Response Plan (ERP) referenced in the Site-Wide Health and Safety Plan (HASP) prepared for BCP investigation and remedial activities conducted at the Tecumseh Redevelopment BCP Sites (former Bethlehem Steel Lackawanna Works), Lackawanna, New York. This appendix of the Site-Wide HASP describes potential emergencies that may occur at the Site; procedures for responding to those emergencies; roles and responsibilities during emergency response; and training all workers must receive in order to follow emergency procedures. This ERP also describes the provisions this Site has made to coordinate its emergency response planning with other contractors on-site and with off-site emergency response organizations.

This ERP is consistent with the requirements of 29 CFR 1910.120(l) and provides the following site-specific information:

- Pre-emergency planning.
- Personnel roles, lines of authority, and communication.
- Emergency recognition and prevention.
- Safe distances and places of refuge.
- Evacuation routes and procedures.
- Decontamination procedures.
- Emergency medical treatment and first aid.
- Emergency alerting and response procedures.
- Critique of response and follow-up.
- Emergency personal protective equipment (PPE) and equipment.

2.0 PRE-EMERGENCY PLANNING

This Site has been evaluated for potential emergency occurrences, based on site hazards, the required work tasks, the site topography, and prevailing weather conditions. The results of that evaluation indicate the potential for the following site emergencies to occur at the locations indicated.

Type of Emergency:

1. Medical, due to physical injury
2. Fire

Source of Emergency:

1. Slip/trip/fall
2. Fire

Location of Source:

1. Non-specific

3.0 ON-SITE EMERGENCY RESPONSE EQUIPMENT

Emergency procedures may require specialized equipment to facilitate worker rescue, contamination control and reduction, or post-emergency clean up. Emergency response equipment available on the Site is listed below. The equipment inventory and storage locations are based on the potential emergencies described above. This equipment inventory is designed to meet on-site emergency response needs and any specialized equipment needs that off-site responders might require because of the hazards at this Site but not ordinarily stocked.

Any additional personal protective equipment (PPE) required and stocked for emergency response is also listed in below. During an emergency, the Emergency Response Coordinator (ERC) is responsible for specifying the level of PPE required for emergency response. At a minimum, PPE used by emergency responders will comply with Section 7.0, Personal Protective Equipment, of this HASP. Emergency response equipment is inspected at regular intervals and maintained in good working order. The equipment inventory is replenished as necessary to maintain response capabilities.

Emergency Equipment	Quantity	Location
Spill Response Kit	2	Benzol Yard ICM Treatment Building; Wastewater Treatment Plant Garage (Phase III parcel)
First Aid Kit	3	Site Vehicle; Benzol Yard ICM Treatment Building; Field Office in Coke Oven Office Building
Chemical Fire Extinguisher	2 (minimum)	All heavy equipment and Site Vehicle

Emergency PPE	Quantity	Location
Full-face respirator	1 for each worker	Site Vehicle
Chemical-resistant suits	4 (minimum)	Site Vehicle

4.0 EMERGENCY PLANNING MAPS

An area-specific map of the Tecumseh Redevelopment Site will be developed on a daily basis during performance of field activities. The map will be marked to identify critical on-site emergency planning information, including: emergency evacuation routes, a place of refuge, an assembly point, and the locations of key site emergency equipment. Site zone boundaries will be shown to alert responders to known areas of contamination. There are no major topographical features; however, the direction of prevailing winds/weather conditions that could affect emergency response planning are also marked on the map. The map will be posted at site-designated place of refuge and inside the TurnKey personnel field vehicle.

5.0 EMERGENCY CONTACTS

The following identifies the emergency contacts for this ERP.

Emergency Telephone Numbers:

Project Manager: ***Thomas H. Forbes, P.E.***
Work: (716) 856-0599
Mobile: (716) 864-1730

Corporate Health and Safety Director: ***Michael M. Yount, CESCO***
Work: (716) 856-0599
Mobile: (716) 983-3143

Site Safety and Health Officer (SSHO): ***Richard L. Dubisz***
Work: (716) 856-0635
Mobile: (716) 998-4334

Alternate SSHO: ***Thomas A. Behrendt***
Work: (716) 856-0635
Mobile: (716) 818-8358

MERCY HOSPITAL (ER):	(716) 826-7000
FIRE:	911
AMBULANCE:	911
BUFFALO POLICE:	911
STATE EMERGENCY RESPONSE HOTLINE:	(800) 457-7362
NATIONAL RESPONSE HOTLINE:	(800) 424-8802
NYSDOH:	(716) 847-4385
NYSDEC:	(716) 851-7220
NYSDEC 24-HOUR SPILL HOTLINE:	(800) 457-7252

The Site location is:
Tecumseh Redevelopment Inc.
1951 Hamburg Turnpike
Lackawanna, New York 14218
Site Phone Number: (Insert Cell Phone or Field Trailer): _____

6.0 EMERGENCY ALERTING & EVACUATION

Internal emergency communication systems are used to alert workers to danger, convey safety information, and maintain site control. Any effective system can be employed. Two-way radio headsets or field telephones are often used when work teams are far from the command post. Hand signals and air-horn blasts are also commonly used. Every system must have a backup. It shall be the responsibility of each contractor's SSHO to ensure an adequate method of internal communication is understood by all personnel entering the site. Unless all personnel are otherwise informed, the following signals shall be used.

1) Emergency signals by portable air horn, siren, or whistle: two short blasts, personal injury; continuous blast, emergency requiring site evacuation.

2) Visual signals: hand gripping throat, out of air/cannot breathe; hands on top of head, need assistance; thumbs up, affirmative/everything is OK; thumbs down, no/negative; grip partner's wrist or waist, leave area immediately.

If evacuation notice is given, site workers leave the worksite with their respective buddies, if possible, by way of the nearest exit. Emergency decontamination procedures detailed in Section 12.0 of the HASP are followed to the extent practical without compromising the safety and health of site personnel. The evacuation routes and assembly area will be determined by conditions at the time of the evacuation based on wind direction, the location of the hazard source, and other factors as determined by rehearsals and inputs from emergency response organizations. Wind direction indicators are located so that workers can determine a safe up wind or cross wind evacuation route and assembly area if not informed by the emergency response coordinator at the time the evacuation alarm sounds. Since work conditions and work zones within the site may be changing on daily basis, it shall be the responsibility of the construction SSHO to review evacuation routes and procedures as necessary and to inform all TurnKey-Benchmark workers of any changes.

Personnel exiting the site will gather at a designated assembly point. To determine that everyone has successfully exited the site, personnel will be accounted for at the assembly site. If any worker cannot be accounted for, notification is given to the SSHO (***Thomas Behrendt*** or ***Richard Dubisz***) so that appropriate action can be initiated. Contractors and subcontractors on this Site have coordinated their emergency response plans to ensure that

these plans are compatible and that source(s) of potential emergencies are recognized, alarm systems are clearly understood, and evacuation routes are accessible to all personnel relying upon them.

7.0 EXTREME WEATHER CONDITIONS

In the event of adverse weather conditions, the SSHO in conjunction with the Contractor's SSHO will determine if engineering operations can continue without sacrificing the health and safety of site personnel. Items to be considered prior to determining if work should continue include but are not limited to:

- Potential for heat/cold stress.
- Weather-related construction hazards (i.e., flooding or wet conditions producing undermining of structures or sheeting, high wind threats, etc).
- Limited visibility.
- Potential for electrical storms.
- Limited site access/egress (e.g., due to heavy snow)

8.0 EMERGENCY MEDICAL TREATMENT & FIRST AID

Personnel Exposure:

The following general guidelines will be employed in instances where health impacts threaten to occur acute exposure is realized:

- Skin Contact: Use copious amounts of soap and water. Wash/rinse affected area for at least 15 minutes. Decontaminate and provide medical attention. Eyewash stations will be provided on site. If necessary, transport to Mercy Hospital.
- Inhalation: Move to fresh air and, if necessary, transport to Mercy Hospital.
- Ingestion: Decontaminate and transport to Mercy Hospital.

Personal Injury:

Minor first-aid will be applied on-site as deemed necessary. In the event of a life threatening injury, the individual should be transported to Mercy Hospital via ambulance. The SSHO will supply available chemical specific information to appropriate medical personnel as requested.

First aid kits will conform to Red Cross and other applicable good health standards, and shall consist of a weatherproof container with individually sealed packages for each type of item. First aid kits will be fully equipped before being sent out on each job and will be checked weekly by the SSHO to ensure that the expended items are replaced.

Directions to Mercy Hospital (see Figure A-1):

The following directions describe the best route to Mercy Hospital:

- From Gate 2, proceed onto the Hamburg Turnpike (SR 5).
- Proceed east on Hamburg Turnpike (SR 5) to the Tifft Street Exit and turn right onto Tifft Street.
- Take Tifft Street east crossing South Park Avenue and McKinley Parkway. Bear left on Edgewood Avenue.
- Turn right on Abbott Road and Mercy Hospital will be on right hand side. Follow signs to emergency room (ER).

9.0 EMERGENCY RESPONSE CRITIQUE & RECORD KEEPING

Following an emergency, the SSHO and Project Manager shall review the effectiveness of this Emergency Response Plan (ERP) in addressing notification, control, and evacuation requirements. Updates and modifications to this ERP shall be made accordingly. It shall be the responsibility of each contractor to establish and assure adequate records of the following:

- Occupational injuries and illnesses.
- Accident investigations.
- Reports to insurance carrier or State compensation agencies.
- Reports required by the client.
- Records and reports required by local, state, federal, and/or international agencies.
- Property or equipment damage.
- Third party injury or damage claims.
- Environmental testing logs.
- Explosive and hazardous substances inventories and records.
- Records of inspections and citations.
- Safety training.

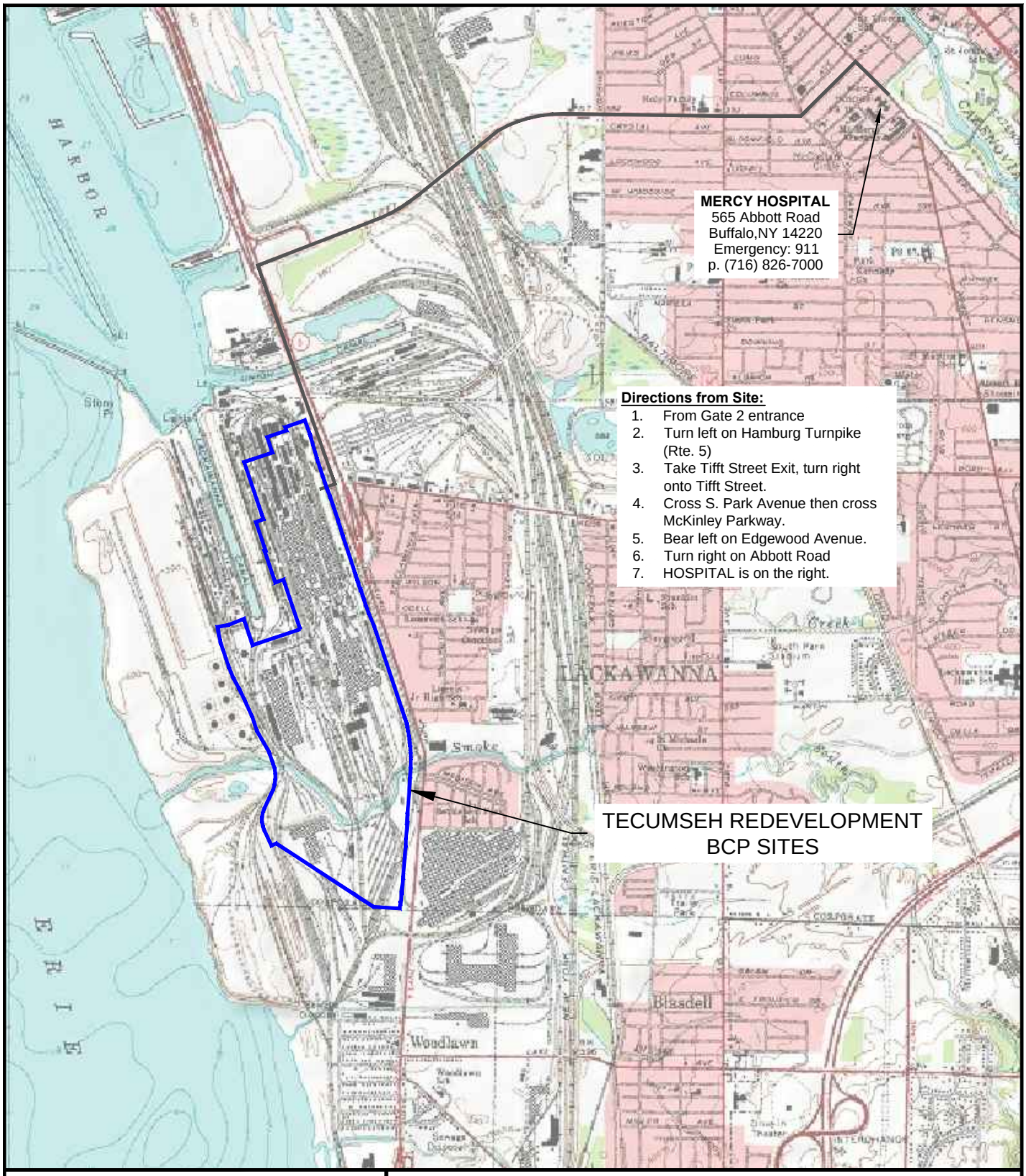
10.0 EMERGENCY RESPONSE TRAINING

All persons who enter the worksite, including visitors, shall receive a site-specific briefing about anticipated emergency situations and the emergency procedures by the SSHO. Where this site relies on off-site organizations for emergency response, the training of personnel in those off-site organizations has been evaluated and is deemed adequate for response to this site.

FIGURES

F:\CAD\TurnKey\Tecumseh Redevelopment\Brownfield Cleanup Program (BCP)\Site-Wide HASP\Figure A-1; Hospital Route Map.dwg

FIGURE A-1



TurnKey Environmental Restoration, LLC

2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0635

PROJECT NO.: 0071-012-322

DATE: JULY 2013

DRAFTED BY: BLR

HOSPITAL ROUTE MAP

SITE-WIDE HEALTH AND SAFETY PLAN

TECUMSEH REDEVELOPMENT BCP SITES
LACKAWANNA, NEW YORK

APPENDIX B

HOT WORK PERMIT FORM

HOT WORK PERMIT

PART 1 - INFORMATION

Issue Date:	
Date Work to be Performed: Start:	Finish (permit terminated):
Performed By:	
Work Area:	
Object to be Worked On:	

PART 2 - APPROVAL

(for 1, 2 or 3: mark Yes, No or NA)*

Will working be on or in:	Finish (permit terminated):	
1. Metal partition, wall, ceiling covered by combustible material?	yes	no
2. Pipes, in contact with combustible material?	yes	no
3. Explosive area?	yes	no

* = If any of these conditions exist (marked "yes"), a permit will not be issued without being reviewed and approved by Thomas H. Forbes (Corporate Health and Safety Director). Required Signature below.

PART 3 - REQUIRED CONDITIONS**

(Check all conditions that must be met)

	PROTECTIVE ACTION		PROTECTIVE EQUIPMENT
	Specific Risk Assessment Required		Goggles/visor/welding screen
	Fire or spark barrier		Apron/fireproof clothing
	Cover hot surfaces		Welding gloves/gauntlets/other:
	Move movable fire hazards, specifically		Wellintons/Knee pads
	Erect screen on barrier		Ear protection: Ear muffs/Ear plugs
	Restrict Access		B.A.: SCBA/Long Breather
	Wet the ground		Respirator: Type:
	Ensure adequate ventilation		Cartridge:
	Provide adequate supports		Local Exhaust Ventilation
	Cover exposed drain/floor or wall cracks		Extinguisher/Fire blanket
	Fire watch (must remain on duty during duration of permit)		Personal flammable gas monitor
	Issue additional permit(s):		

Other precautions:

** Permit will not be issued until these conditions are met.

SIGNATURES

Orginating Employee:	Date:
Project Manager:	Date:
Part 2 Approval:	Date:

Prepared By: _____

APPENDIX C

NYSDOH GENERIC COMMUNITY AIR MONITORING PLAN

Appendix 1A
New York State Department of Health
Generic Community Air Monitoring Plan

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. “Periodic” monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or

overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

December 2009

Appendix 1B
Fugitive Dust and Particulate Monitoring

A program for suppressing fugitive dust and particulate matter monitoring at hazardous waste sites is a responsibility on the remedial party performing the work. These procedures must be incorporated into appropriate intrusive work plans. The following fugitive dust suppression and particulate monitoring program should be employed at sites during construction and other intrusive activities which warrant its use:

1. Reasonable fugitive dust suppression techniques must be employed during all site activities which may generate fugitive dust.

2. Particulate monitoring must be employed during the handling of waste or contaminated soil or when activities on site may generate fugitive dust from exposed waste or contaminated soil. Remedial activities may also include the excavation, grading, or placement of clean fill. These control measures should not be considered necessary for these activities.

3. Particulate monitoring must be performed using real-time particulate monitors and shall monitor particulate matter less than ten microns (PM10) with the following minimum performance standards:

(a) Objects to be measured: Dust, mists or aerosols;
(b) Measurement Ranges: 0.001 to 400 mg/m3 (1 to 400,000 :ug/m3);
(c) Precision (2-sigma) at constant temperature: +/- 10 :g/m3 for one second averaging; and +/- 1.5 g/m3 for sixty second averaging;
(d) Accuracy: +/- 5% of reading +/- precision (Referred to gravimetric calibration with SAE fine test dust (mmd= 2 to 3 :m, g= 2.5, as aerosolized);
(e) Resolution: 0.1% of reading or 1g/m3, whichever is larger;
(f) Particle Size Range of Maximum Response: 0.1-10;
(g) Total Number of Data Points in Memory: 10,000;
(h) Logged Data: Each data point with average concentration, time/date and data point number
(i) Run Summary: overall average, maximum concentrations, time/date of maximum, total number of logged points, start time/date, total elapsed time (run duration), STEL concentration and time/date occurrence, averaging (logging) period, calibration factor, and tag number;
(j) Alarm Averaging Time (user selectable): real-time (1-60 seconds) or STEL (15 minutes), alarms required;
(k) Operating Time: 48 hours (fully charged NiCd battery); continuously with charger;
(l) Operating Temperature: -10 to 50^{o} C (14 to 122^{o} F);
(m) Particulate levels will be monitored upwind and immediately downwind at the working site and integrated over a period not to exceed 15 minutes.

4. In order to ensure the validity of the fugitive dust measurements performed, there must be appropriate Quality Assurance/Quality Control (QA/QC). It is the responsibility of the remedial party to adequately supplement QA/QC Plans to include the following critical features: periodic instrument calibration, operator training, daily instrument performance (span) checks, and a record keeping plan.

5. The action level will be established at 150 ug/m3 (15 minutes average). While conservative,

this short-term interval will provide a real-time assessment of on-site air quality to assure both health and safety. If particulate levels are detected in excess of 150 ug/m3, the upwind background level must be confirmed immediately. If the working site particulate measurement is greater than 100 ug/m3 above the background level, additional dust suppression techniques must be implemented to reduce the generation of fugitive dust and corrective action taken to protect site personnel and reduce the potential for contaminant migration. Corrective measures may include increasing the level of personal protection for on-site personnel and implementing additional dust suppression techniques (see paragraph 7). Should the action level of 150 ug/m3 continue to be exceeded work must stop and DER must be notified as provided in the site design or remedial work plan. The notification shall include a description of the control measures implemented to prevent further exceedances.

6. It must be recognized that the generation of dust from waste or contaminated soil that migrates off-site, has the potential for transporting contaminants off-site. There may be situations when dust is being generated and leaving the site and the monitoring equipment does not measure PM10 at or above the action level. Since this situation has the potential to allow for the migration of contaminants off-site, it is unacceptable. While it is not practical to quantify total suspended particulates on a real-time basis, it is appropriate to rely on visual observation. If dust is observed leaving the working site, additional dust suppression techniques must be employed. Activities that have a high dusting potential--such as solidification and treatment involving materials like kiln dust and lime--will require the need for special measures to be considered.

7. The following techniques have been shown to be effective for the controlling of the generation and migration of dust during construction activities:

(a) Applying water on haul roads;
(b) Wetting equipment and excavation faces;
(c) Spraying water on buckets during excavation and dumping;
(d) Hauling materials in properly tarped or watertight containers;
(e) Restricting vehicle speeds to 10 mph;
(f) Covering excavated areas and material after excavation activity ceases; and
(g) Reducing the excavation size and/or number of excavations.

Experience has shown that the chance of exceeding the 150ug/m3 action level is remote when the above-mentioned techniques are used. When techniques involving water application are used, care must be taken not to use excess water, which can result in unacceptably wet conditions. Using atomizing sprays will prevent overly wet conditions, conserve water, and provide an effective means of suppressing the fugitive dust.

8. The evaluation of weather conditions is necessary for proper fugitive dust control. When extreme wind conditions make dust control ineffective, as a last resort remedial actions may need to be suspended. There may be situations that require fugitive dust suppression and particulate monitoring requirements with action levels more stringent than those provided above. Under some circumstances, the contaminant concentration and/or toxicity may require additional monitoring to protect site personnel and the public. Additional integrated sampling and chemical analysis of the dust may also be in order. This must be evaluated when a health and safety plan is developed and when appropriate suppression and monitoring requirements are established for protection of health and the environment.

APPENDIX D

MONITORING WELL BORING AND CONSTRUCTION LOGS

Project No: 0071-009-311

Borehole Number: MWN-63A

Project: Phase II Business Park Area

A.K.A.:

Client: Tecumseh Redevelopment, Inc.

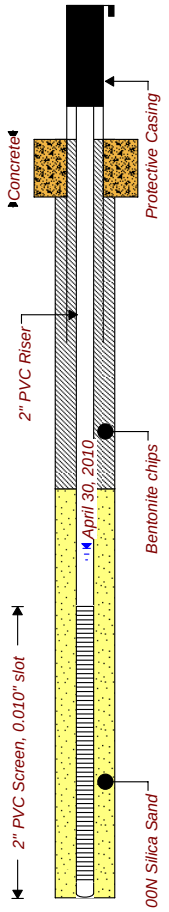
Logged By: TAB

Site Location: Lackawanna, NY

Checked By: BCH

TurnKey Environmental Restoration, LLC
2558 Hamburg Turnpike, Suite 300
Buffalo, NY 14218
(716) 856-0635

SUBSURFACE PROFILE			SAMPLE						
Depth (fbgs)	Elev. /Depth	Description (ASTM D2488: Visual-Manual Procedure)	Sample No.	SPT N-Value	Recovery (ft)	Symbol	PID VOCs ppm 0 12.5 25	Lab Sample	Well Completion Details or Remarks
-3.0									
	0.0 / 0.0	Ground Surface							
		Advanced augers to 13.0 fbgs, see MWN-63D 0.0 to 13.0 fbgs for soil descriptions .							
2.0									
7.0									
12.0									
	-13.0 / 13.0	End of Borehole							
17.0									



Drilled By: Earth Dimensions, Inc.
Drill Rig Type: Diedrich D-120
Drill Method: 4 1/4" HSA, no sampling
Comments:
Drill Date(s): 4 2 10

Hole Size: 8 1/2 - inch
Stick-up: 2.06 - feet
Datum: Mean Sea Level

Sheet: 1 of 1

Project No: 0071-009-311

Borehole Number: MWN-63D

Project: Phase II Business Park

A.K.A.:

Client: Tecumseh Redevelopment, Inc.

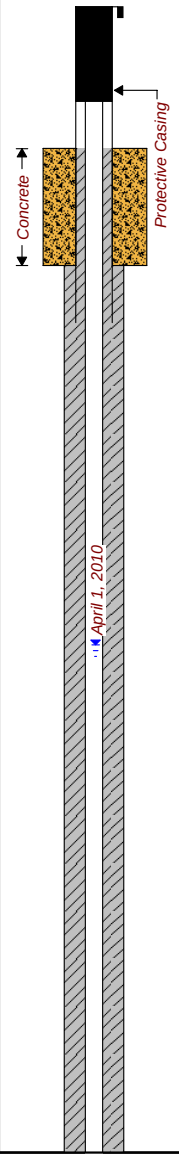
Logged By: TAB

Site Location: Lackawanna, NY

Checked By: BCH

TurnKey Environmental Restoration, LLC
2558 Hamburg Turnpike, Suite 300
Buffalo, NY 14218
(716) 856-0635

SUBSURFACE PROFILE			SAMPLE						
Depth (fbgs)	Elev. /Depth	Description (ASTM D2488: Visual-Manual Procedure)	Sample No.	SPT N-Value	Recovery (ft)	Symbol	PID VOCs ppm (0 / 12.5 / 25)	Lab Sample	Well Completion Details or Remarks
-3.0									
	0.0	Ground Surface							
	0.0	***Fill*** Black, moist, non-plastic fines with some fine sand with slag, orange brick pieces, coal pieces, medium dense, loose when disturbed.	S1	18	1.3		0.0		
	-2.0								
2.0	2.0	Brown, moist to wet, non plastic fines, some sand, slag, brick, with pockets of lean clay.	S2	5	1.1		0.0		
	-4.0								
	4.0	***Lean Clay*** Grey, moist, mostly medium plastcity fines, few fine sands, stiff.	S3	6	1.1		0.0		
	-6.0								
	6.0	Same as above.	S4	17	1.4		0.0		
7.0	-8.0								
	8.0	***Poorly Graded Sand*** Dark grey, wet at (8.5 fbgs), mostly medium sand, trace non-plastic fines, few coarse sands, trace sub-rounded fine gravel, loose, rapid dilatancy.	S5	3	1.1		0.0		
	-10.0								
	10.0	As above	S6	10	.9		0.0		
	-12.0								
12.0	12.0	Same as above	S7	NA	1.1		0.0		
	-13.0								
	13.0	***Sandy Organic Soil*** Brown, wet, mostly organic fines, some fine sand, rootlets, low plasticity fines, soft.							
	-14.0								
	14.0	Same as above.	S8	3	1.0		0.0		
	-16.0								
	16.0								
	-16.5								
	16.5		S9	4	.9		0.0		
17.0									



Drilled By: Earth Dimensions, Inc.
Drill Rig Type: Dietrich D-120
Drill Method: 2' Continuous SS w/ 4 ¼" HSA and NQ core barrel
Comments:
Drill Date(s): 4/1 - 4/2/10

Hole Size: 8 1/2 -inch
Stick-up: 2.24-feet
Datum: Mean Sea Level

Sheet: 1 of 3

Project No: 0071-009-311

Borehole Number: MWN-63D

Project: Phase II Business Park

A.K.A.:

Client: Tecumseh Redevelopment, Inc.

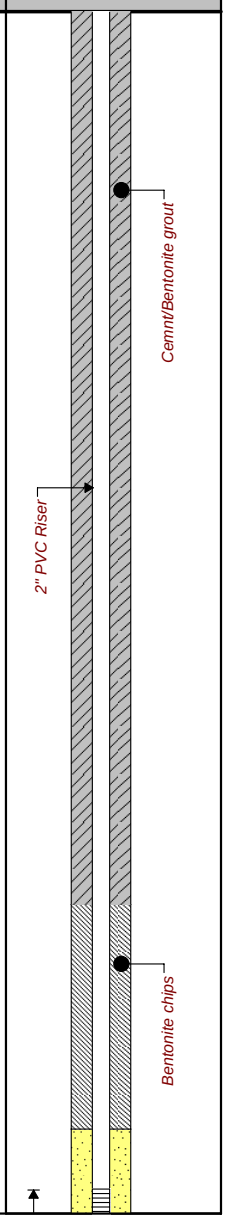
Logged By: TAB

Site Location: Lackawanna, NY

Checked By: BCH

TurnKey Environmental Restoration, LLC
2558 Hamburg Turnpike, Suite 300
Buffalo, NY 14218
(716) 856-0635

SUBSURFACE PROFILE			SAMPLE						
Depth (fbgs)	Elev. /Depth	Description (ASTM D2488: Visual-Manual Procedure)	Sample No.	SPT N-Value	Recovery (ft)	Symbol	PID VOCs ppm (0 / 12.5 / 25)	Lab Sample	Well Completion Details or Remarks
	-18.0 / 18.0	***Lean Clay*** Grey, moist, mostly medium plasticity fines, few fine sand with organic particles, stiff.	S9	4			0.0		
		Sandy Organic Soil Brown, wet, mostly organic fines, some fine sand, rootlets, low plasticity fines, soft, thinley bedded lean clay lenses.	S10	5	.9		0.0		
	-20.0 / 20.0	Same as above,no clay lenses.							
	-21.0 / 21.0	Same as above.	S11	16	1.1		0.0		
	-22.0 / 22.0	***Poorly Graded Sand with Silt*** Grey, wet, Some fine sand, few silt, with trace trace fine gravel, medium dense							
22.0		***Silty Sand*** Grey, wet, mostly fine sand, few non plastic fines, medium dense	S12	12	1.4		0.0		
	-24.0 / 24.0	***Lean Clay*** Grey, wet, mostly high plasticity fines, few sand, very stiff, thinnly bedded.	S13	11	1.2		0.0		
	-26.0 / 26.0	Same as above, stiff to soft	S14	6	1.5		0.0		
27.0	-28.0 / 28.0	Same as above,soft.	S15	WH	2.0		0.0		
	-30.0 / 30.0	***Sandy Lean Clay*** Grey, wet, mostly medium plastcity fines with some fine sand, few fine gravel, trace coarse gravel, very dense, massive	S16	6	1.0		0.0		
32.0	-32.0 / 32.0	As above, few subangular coarse gravel.	S17	43	1.0		0.0		
	-34.0 / 34.0	***Dolomitic Limestone with Shale bedding.*** Shale chips; Top of bedrock 34.8 fgbs (Auger refusal)	S18	NA	0.0		0.0		
	-34.8 / 34.8								
37.0									



Drilled By: Earth Dimensions, Inc.
Drill Rig Type: Dietrich D-120
Drill Method: 2' Continuous SS w/ 4 ¼" HSA and NQ core barrel
Comments:
Drill Date(s): 4/1 - 4/2/10

Hole Size: 8 1/2 -inch
Stick-up: 2.24-feet
Datum: Mean Sea Level

Sheet: 2 of 3

Project No: 0071-009-311

Borehole Number: MWN-63D

Project: Phase II Business Park

A.K.A.:

Client: Tecumseh Redevelopment, Inc.

Logged By: TAB

Site Location: Lackawanna, NY

Checked By: BCH

TurnKey Environmental Restoration, LLC
2558 Hamburg Turnpike, Suite 300
Buffalo, NY 14218
(716) 856-0635

SUBSURFACE PROFILE			SAMPLE						
Depth (fbgs)	Elev. /Depth	Description (ASTM D2488: Visual-Manual Procedure)	Sample No.	SPT N-Value	Recovery (ft)	Symbol	PID VOCs ppm 0 12.5 25	Lab Sample	Well Completion Details or Remarks
42.0		Dark grey to grey, microcrystaline with laminations less then 1 to 3 mm, moderate field strength weathered slightly along bedding planes, medium soft, broken. Run #1 34.8 - 44.8 total recovery 99% RQD 43.69% poor, lost approximatley 20 gallons of drilling water. Run #2 44.8 - 49.8 total recovery 95% RQD 59% Fair, lost approximatley 180 gallons of drilling water.							2" PVC Screen, 0.010" slot 00N Silica Sand
47.0									
	-49.8 49.8	End of Borehole							
52.0									
57.0									

Drilled By: Earth Dimensions, Inc.
Drill Rig Type: Dietrich D-120
Drill Method: 2' Continuous SS w/ 4 ¼" HSA and NQ core barrel
Comments:
Drill Date(s): 4/1 - 4/2/10

Hole Size: 8 1/2 -inch
Stick-up: 2.24-feet
Datum: Mean Sea Level

Sheet: 3 of 3

Project No: 0071-009-311

Borehole Number: MWN-64A

Project: Phase II Business Park Area

A.K.A.:

Client: Tecumseh Redevelopment, Inc.

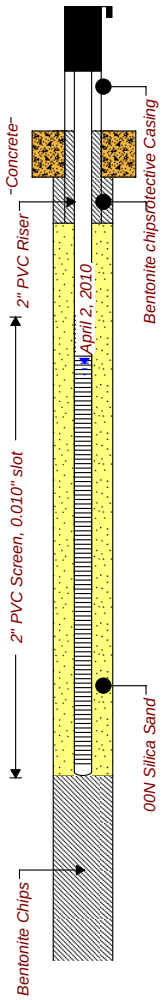
Logged By: TAB

Site Location: Lackawanna, NY

Checked By: BCH

TurnKey Environmental Restoration, LLC
2558 Hamburg Turnpike, Suite 300
Buffalo, NY 14218
(716) 856-0635

SUBSURFACE PROFILE			SAMPLE						
Depth (fbgs)	Elev. /Depth	Description (ASTM D2488: Visual-Manual Procedure)	Sample No.	SPT N-Value	Recovery (ft)	Symbol	PID VOCs ppm (0 – 12.5 – 25)	Lab Sample	Well Completion Details or Remarks
-3.0									
	0.0	Ground Surface							
	0.0	***Fill*** Grey brown, moist, non-plastic fines with some fine sand, slag, medium dense.	S1	16	1.1		0.0		
	-2.0 2.0	As above, black, coal and coke fines, orange brick, loose.	S2	8	1.0		0.3		
2.0	-4.0 4.0	As above.	S3	3	1.0		0.3		
	-5.0 5.0	***Poorly Graded Sand with Silt*** Brown, wet, mostly medium sand, few non plastic fines, few fine sub rounded gravel, loose, rapid dilatancy.							
	-6.0 6.0	***Slag/Fill*** Grey, wet, coarse slag with trace non plastic fines and fine sand, medium dense.	S4	16	1.7		0.0		
7.0	-8.0 8.0	As above.	S5	17	1.2		0.0		
	-10.0 10.0	***Concrete*** No recovery concrete sluff, rig chatter (10.0 - 12.0 fbgs).	S6	NA	0.0		0.0		
12.0	-12.0 12.0	No Recovery.	S7	NA	0.0		0.0		
	-14.0 14.0	***Silty Sand*** Grey, wet, mostly fine sand, with some non plastic fines, soft, no odor.	S8	WR	0.6		0.0		
	-15.0 15.0								
	-16.0 16.0	***Sandy Organic Soil*** Brown, wet, mostly organic, some fine sand, low plasticity fines, soft.	S9	WH	0.8		0.3		
17.0	-18.0 18.0	as above.							
		End of Borehole							
22.0									



Drilled By: Eart Dimensions, Inc.
Drill Rig Type: Diedrich D120
Drill Method: 2' Continuous SS w/ 4 ¼" HSA
Comments:
Drill Date(s): 4 2 10

Hole Size: 8 1/2 -inch
Stick-up: 2.58 - feet
Datum: Mean Sea Level

Sheet: 1 of 1

Project No: 0071-009-311

Borehole Number: MWN-65D

Project: Phase II Business Park Area

A.K.A.:

Client: Tecumseh Redevelopment, Inc.

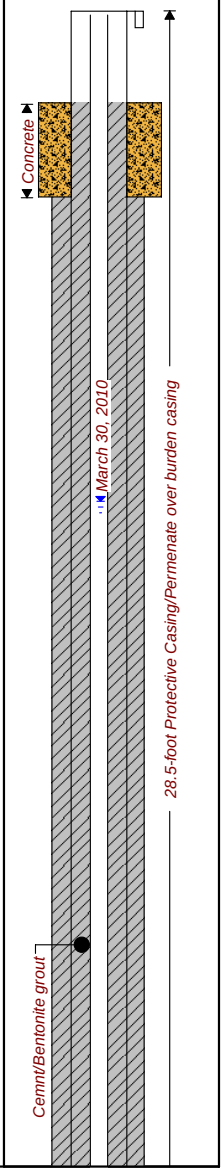
Logged By: TAB

Site Location: Lackawanna, NY

Checked By: BCH

TurnKey Environmental Restoration, LLC
2558 Hamburg Turnpike, Suite 300
Buffalo, NY 14218
(716) 856-0635

SUBSURFACE PROFILE			SAMPLE						
Depth (fbgs)	Elev. /Depth	Description (ASTM D2488: Visual-Manual Procedure)	Sample No.	SPT N-Value	Recovery (ft)	Symbol	PID VOCs ppm (0 – 25 – 50)	Lab Sample	Well Completion Details or Remarks
-2.0									
	0.0	Ground Surface							
	0.0	Augered to 5.0 fbgs.							
3.0									
	-5.0								
	5.0	***Slag/Fill*** Dark grey, moist, mostly medium plasticity fines with few sand, with slag and orange brick, medium dense.	S1	10	2.0		0.1		
	-7.0								
	7.0	Augered to 10.0 fbgs.							
8.0									
	-10.0								
	10.0	***Silty Sand*** Black, wet, mostly fine sand with some non plastic fines, medium dense.	S2	13	1.9		15.1		
	-11.0								
	11.0	***Lean Clay*** Dark grey, moist, mostly medium plasticity fines with few fine sand, rootlets, soft, no odors.							
	-12.0								
	12.0	Augered to 15.0 fbgs.							
13.0									
	-15.0								
	15.0	***Silty Sand*** Black, wet, mostly fine sand with some non plastic fines, soft, petroleum like odor.	S3	WH	2.0		27.2		
	-17.0								
	17.0	Augered to 20.0 fbgs.							
18.0									
	-20.0								
	20.0	***Sandy Lean Clay*** Grey, wet, medium plasticity with some fine sand, thinly bedded, soft.	S4	14	1.4		0.0		
	-22.0								
	22.0						0.3		



Drilled By: Earth Dimensions, Inc.
Drill Rig Type: Diedrich D-120
Drill Method: Standard + continuous 2' SS + 4' macro core with 8 ½" HSA, NQ Core barrel
Comments:
Drill Date(s): 3 30 10 and 4 5 10

Hole Size: 17-inch
Stick-up: 1.92 - feet
Datum: Mean Sea Level

Sheet: 1 of 3

Project No: 0071-009-311

Borehole Number: MWN-65D

Project: Phase II Business Park Area

A.K.A.:

Client: Tecumseh Redevelopment, Inc.

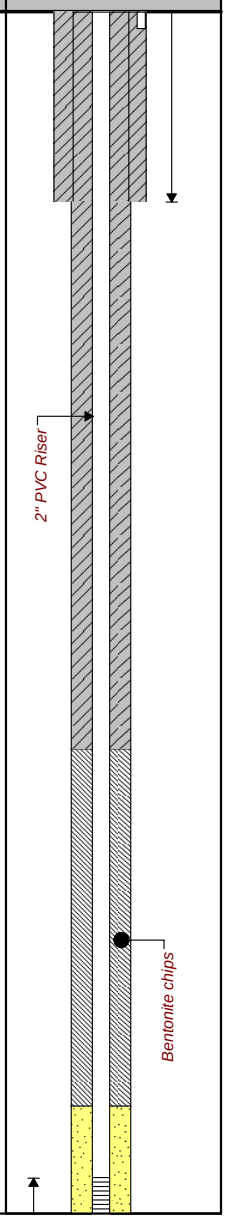
Logged By: TAB

Site Location: Lackawanna, NY

Checked By: BCH

TurnKey Environmental Restoration, LLC
2558 Hamburg Turnpike, Suite 300
Buffalo, NY 14218
(716) 856-0635

SUBSURFACE PROFILE			SAMPLE						
Depth (fbgs)	Elev. /Depth	Description (ASTM D2488: Visual-Manual Procedure)	Sample No.	SPT N-Value	Recovery (ft)	Symbol	PID VOCs ppm	Lab Sample	Well Completion Details or Remarks
	-24.0 / 24.0	***Lean Clay*** Grey, wet, medium plasticity fines, few sand, soft, (pushed 6-inch steel overburden casing to 26.5 fbgs.)	S5	4	2.0		0.0		
		No sample taken							
	-26.5 / 26.5								
27.0		As above, trace coarse sand (28.5-30.5 fbgs), soft, massive.	S6	NA	3.6		0.0		
	-30.5 / 30.5						0.0		
		Lean Clay with Sand. Grey, wet, medium plasticity fines with little fine sand, soft, massive.	S7	NA	2.0		0.0		
32.0	-33.0 / 33.0								
		Sandy Lean Clay Grey, moist, mostly medium plasticity fines, some fine sand, few sub rounded fine gravels, trace coarse gravel in shoe, very hard.					0.0		
	-34.5 / 34.5	As above, brown, mostly low plasticity fines.	S8	NA	2.3		0.0		
37.0							0.0		
	-38.5 / 38.5	As above shale fragments.	S9	138	1.8		0.0		
	-40.5 / 40.5	As above, slight Petroliferous odor, in shale	S10	154	1.5		0.0		
42.0	-42.5 / 42.5	As above.	S11	NA	1.0		0.3		
	-44.5 / 44.5		S12	NA	0.4				
		Shale Black, shale chips, some non plastic fines little fine sand, petroliferous odor, top of competent bed rock44.3 fbgs, seated temporary casing to 45.0 fbgs.							
47.0									



Drilled By: Earth Dimensions, Inc.
Drill Rig Type: Diedrich D-120
Drill Method: Standard + continuous 2' SS + 4' macro core with 8 ½" HSA, NQ Core barrel
Comments:
Drill Date(s): 3 30 10 and 4 5 10

Hole Size: 17-inch
Stick-up: 1.92 - feet
Datum: Mean Sea Level

Sheet: 2 of 3

Project No: 0071-009-311

Borehole Number: MWN-65D

Project: Phase II Business Park Area

A.K.A.:

Client: Tecumseh Redevelopment, Inc.

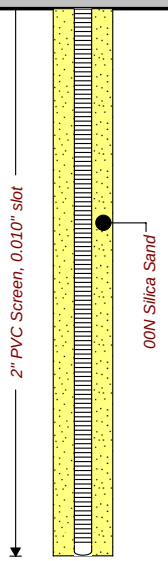
Logged By: TAB

Site Location: Lackawanna, NY

Checked By: BCH

TurnKey Environmental Restoration, LLC
2558 Hamburg Turnpike, Suite 300
Buffalo, NY 14218
(716) 856-0635

SUBSURFACE PROFILE			SAMPLE						
Depth (fbgs)	Elev. /Depth	Description (ASTM D2488: Visual-Manual Procedure)	Sample No.	SPT N-Value	Recovery (ft)	Symbol	PID VOCs ppm 0 25 50	Lab Sample	Well Completion Details or Remarks
	-48.0 / 48.0	Run #1: 45.0' - 47.2' core barrel locked up due to fissile nature of bedrock, pulled core barrel, advanced temporary casing to 48.0 fbgs lost 20 gallons of drilling water. Recovery was less then 1.0 -foot of broken black shale pieces, very fissile petroliferous odor when broken.							
	-51.0 / 51.0	Run#2: 48.0' - 51.2' core locked up as above, pulled core barrel and advanced casing down to 51.2 fbgs, recovery was less then 1-foot of broken black shale, lost 20 gallons of drilling water.							
52.0		Run#3: 51.2'–59.0' lost bedrock core during core barrel retrieval no recovery, started loosing drilling water at 55 fbgs, lost1 75 gallons of drilling water.							
57.0									
	-59.0 / 59.0	End of Borehole							
62.0									
67.0									
72.0									



Drilled By: Earth Dimensions, Inc.
Drill Rig Type: Diedrich D-120
Drill Method: Standard + continuous 2' SS + 4' macro core with 8 ½" HSA, NQ Core barrel
Comments:
Drill Date(s): 3 30 10 and 4 5 10

Hole Size: 17-inch
Stick-up: 1.92 - feet
Datum: Mean Sea Level

Sheet: 3 of 3

Project No: 0071-009-311

Borehole Number: MWS-32A

Project: Phase II Business Park

A.K.A.:

Client: Tecumseh Redevelopment, Inc.

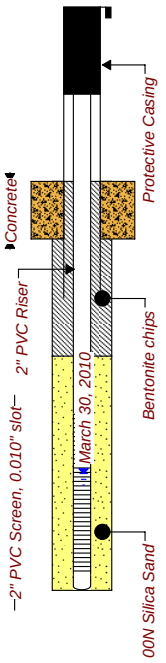
Logged By: TAB

Site Location: Lackawanna, NY

Checked By: BCH

TurnKey Environmental Restoration, LLC
2558 Hamburg Turnpike, Suite 300
Buffalo, NY 14218
(716) 856-0635

SUBSURFACE PROFILE			SAMPLE						
Depth (fbgs)	Elev. /Depth	Description (ASTM D2488: Visual-Manual Procedure)	Sample No.	SPT N-Value	Recovery (ft)	Symbol	PID VOCs ppm (0 – 12.5 – 25)	Lab Sample	Well Completion Details or Remarks
-3.0									
	0.0	Ground Surface							
	0.0	***Fill*** Black, moist,, mostly non-plastic fines with some fine sand with slag and yellow refractory brick, very dense, loose when disturbed.	S1	NA	0.8		0.1		
	-2.0 2.0	As above.	S2	48	1.5		0.0		
	-4.0 4.0	As above, wet at 5.0 fbgs.	S3	22	0.8		0.0		
	-5.5 5.5	***Lean Clay*** Dark grey, moist, mostly medium plasticity fines with few fine sand, very stiff, massive.							
7.0	-6.0 6.0	As above, iron staining, rootlets, thinly bedded, trace fine sand, stiff.	S4	14	1.9		0.0		
	-8.0 8.0	End of Borehole							
12.0									
17.0									



Drilled By: Earth Dimensions, Inc.
Drill Rig Type: Diedrich D-120
Drill Method: 2' Continuous SS w/ 4 ¼" HSA
Comments:
Drill Date(s): 3 30 10

Hole Size: 8 1/2-inch
Stick-up: 2.82 - feet
Datum: Mean Sea Level

Sheet: 1 of 1

Project No: 0071-009-311

Borehole Number: MWS-36A

Project: Phase II Business Park Area

A.K.A.:

Client: Tecumseh Redevelopment, Inc.

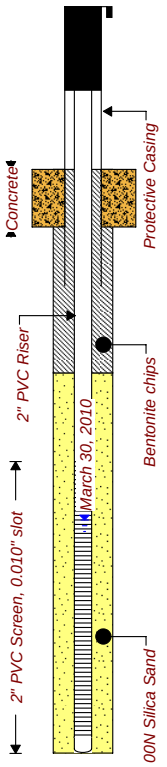
Logged By: TAB

Site Location: Lackawanna, NY

Checked By: BCH

TurnKey Environmental Restoration, LLC
2558 Hamburg Turnpike, Suite 300
Buffalo, NY 14218
(716) 856-0635

SUBSURFACE PROFILE			SAMPLE						
Depth (fbgs)	Elev. /Depth	Description (ASTM D2488: Visual-Manual Procedure)	Sample No.	SPT N-Value	Recovery (ft)	Symbol	PID VOCs ppm (0 – 12.5 – 25)	Lab Sample	Well Completion Details or Remarks
-3.0									
	0.0	Ground Surface							
	0.0	***Fill*** Black, moist, mostly non-plastic fines with some sand with dark grey slag and yellow and orange brick, very dense, loose when disturbed, coal pieces.	S1	63	2.1		0.7		
2.0	-2.0 2.0	As above, coal.	S2	56	0.2		0.8		
	-4.0 4.0	As above, medium dense.	S3	10	.3		0.0		
	-6.0 6.0	Yellow brick, wet at 6.0 fbgs, medium dense.	S4	10	.2		0.0		
7.0	-8.0 8.0	***Lean Clay*** Dark grey, wet to moist, mostly medium plastcity fines with trace fine sand, soft, rootlets, massive.	S5	3	1.1		0.0		
	-10.0 10.0	As above, moist, with rootlets, iron staining, stiff.	S6	13	1.4		0.0		
12.0	-12.0 12.0	End of Borehole							
17.0									



Drilled By: Earth Dimensions, Inc.
Drill Rig Type: Diedrich-D120
Drill Method: 2' Continuous SS w/ 4 ¼" HSA
Comments:
Drill Date(s): 3 30 10

Hole Size: 8 1/2 -inch
Stick-up: 2.61- feet
Datum: Mean Sea Level

Sheet: 1 of 1

Project No: 0071-009-311

Borehole Number: MWS-37A

Project: Phase II Business Park

A.K.A.:

Client: Tecumseh Redevelopment, Inc.

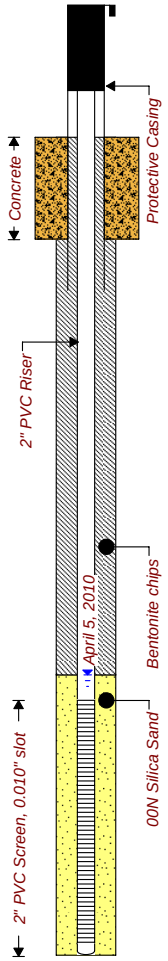
Logged By: TAB

Site Location: Lackawanna, NY

Checked By: BCH

TurnKey Environmental Restoration, LLC
2558 Hamburg Turnpike, Suite 300
Buffalo, NY 14218
(716) 856-0635

SUBSURFACE PROFILE			SAMPLE						
Depth (fbgs)	Elev. /Depth	Description (ASTM D2488: Visual-Manual Procedure)	Sample No.	SPT N-Value	Recovery (ft)	Symbol	PID VOCs ppm (0 – 12.5 – 25)	Lab Sample	Well Completion Details or Remarks
-3.0									
	0.0	Ground Surface							
	0.0	***Fill*** Grey to black, moist, mostly non-plastic fines with some fine sand, slag, orange brick, medium dense, loose when disturbed.	S1	14	2		0.0		
2.0	-2.0 2.0	As above, loose, with coal peices.	S2	6	1.3		0.0		
	-4.0 4.0	As above, no coal peices.	S3	4	1.6		0.0		
	-5.5 5.5								
	-6.0 6.0	***Lean Clay*** Dark grey, moist, mostly medium plasticity fines with few fine sand, medium soft, massive.	S4	4	1.5		0.0		
7.0	-8.0 8.0	As above, iron staining, rootlets, thinly bedded, trace fine sand, black mottling.	S5	12	1.5		0.1		
	-10.0 10.0	As above.							
	-10.5 10.5	***Sandy Lean Clay*** As above, wet at 10.5 fbgs, some fine sand.	S6	6	1.9		0.0		
12.0	-12.0 12.0	***Silty Sand*** Orange/ brown, wet, fine sand with some non plastic fines, loose, rapid dilatency.	S7	WH	1.7		0.0		
	-14.0 14.0	As above. As above, grey, trace coarse sand and fine gravel, loose.	S8	5	1.1		0.0		
	-16.0 16.0	***Lean Clay*** Dark grey, moist, mostly medium plasticity fines with few fine sand, trace coarse sand, very stiff.	S9	24	1.2		0.0		
17.0	-18.0 18.0	End of Borehole							



Drilled By: Earth Dimensions, Inc.
Drill Rig Type: Diedrich-D120
Drill Method: 2' Continuous SS w/ 4 ¼" HSA
Comments:
Drill Date(s): 4 5 10

Hole Size: 8 1/2 -inch
Stick-up: 2.40-feet
Datum: Mean Sea Level

Sheet: 1 of 1

APPENDIX E

GROUNDWATER MONITORING WELL SAMPLING LOG FORMS

GROUNDWATER FIELD FORM

Project Name: Date:

Location: Project No.: Field Team:

Well No.			Diameter (inches):			Sample Date / Time:			
Product Depth (fbTOR):			Water Column (ft):			DTW when sampled:			
DTW (static) (fbTOR):			One Well Volume (gal):			Purpose: ☐ Development ☐ Sample ☐ Purge & Sample			
Total Depth (fbTOR):			Total Volume Purged (gal):			Purge Method:			
Time	Water Level (fbTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
	0 Initial								
	1								
	2								
	3								
	4								
	5								
	6								
	7								
	8								
	9								
	10								
Sample Information:									
	S1								
	S2								

Well No.			Diameter (inches):			Sample Date / Time:			
Product Depth (fbTOR):			Water Column (ft):			DTW when sampled:			
DTW (static) (fbTOR):			One Well Volume (gal):			Purpose: ☐ Development ☐ Sample ☐ Purge & Sample			
Total Depth (fbTOR):			Total Volume Purged (gal):			Purge Method:			
Time	Water Level (fbTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
	0 Initial								
	1								
	2								
	3								
	4								
	5								
	6								
	7								
	8								
	9								
	10								
Sample Information:									
	S1								
	S2								

REMARKS:

Note: All measurements are in feet, distance from top of riser.

Volume Calculation

Diam.	Vol. (g/ft)
1"	0.041
2"	0.163
4"	0.653
6"	1.469

Stabilization Criteria

Parameter	Criteria
pH	± 0.1 unit
SC	± 3%
Turbidity	± 10%
DO	± 0.3 mg/L
ORP	± 10 mV

PREPARED BY:

WATER LEVEL MONITORING RECORD

Project Name:	Client:
Project No.:	Location:
Field Personnel:	Date:
Weather:	

Well No.	Time	Top of Riser Elevation (fmsl)	Static Depth to Water (fbTOR)	Groundwater Elevation (fmsl)	Total Depth (fbTOR)	Last Total Depth Measurement (fbTOR)

APPENDIX F

INSPECTION FORM FOR THE CONTROLLED PROPERTY

Enclosure 1
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Site Management Periodic Review Report Notice
Institutional and Engineering Controls Certification Form

Site Details **Box 1**

Site Nos.**:** **C915198 through C915198L**

Site Name: **Phase II Business Park ("Controlled Property")**

Site Address: **2303 Hamburg Turnpike** Zip Code: **14218**

City/Town: **Lackawanna**

County: **Erie**

Current Use: **Industrial**

Intended Use: **Industrial/Commercial Business Park**

Verification of Site Details	**Box 2** YES	NO
1. Are the Site Details above, correct?	☐	☐
If NO, are changes handwritten above or included on a separate sheet?	☐	☐
2. Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment since the initial/last certification?	☐	☐
If YES, is documentation or evidence that documentation has been previously submitted included with this certification?	☐	☐
3. Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property since the initial/last certification?	☐	☐
If YES, is documentation or evidence that documentation has been previously submitted included with this certification?	☐	☐
4. Has a change-of-use occurred since the initial/last certification?	☐	☐
If YES, is documentation or evidence that documentation has been previously submitted included with this certification?	☐	☐
5. For non-significant-threat Brownfield Cleanup Program Sites subject to ECL 27-1415.7(c), has any new information revealed that assumptions made in the Qualitative Exposure Assessment for offsite contamination are no longer valid?	☐	☐
If YES, is the new information or evidence that new information has been previously submitted included with this Certification?	☐	☐
6. For non-significant-threat Brownfield Cleanup Program Sites subject to ECL 27-1415.7(c), are the assumptions in the Qualitative Exposure Assessment still valid (must be certified every five years) ?	☐	☐

SITE NOs. C915198 through C915198L

Description of Institutional Control Certification

	YES	NO
1. Compliance with the Site Management Plan (SMP) for the implemented remedy:	□	□
2. The groundwater beneath the Site is not used as a potable water source or for any other use without prior written permission of the Department:	□	□
3. Groundwater monitoring as specified in the SMP:	□	□
4. Operation and maintenance of the ASD system as specified in the SMP:	□	□

Description of Engineering Control Certification **Box 4**

	YES	NO
1. Maintenance of the cover systems over the Site:	□	□

Control Certification Statement

For each Institutional or Engineering control listed above, I certify by checking "Yes" that all of the following statements are true:

(a) the Institutional Control and/or Engineering Control employed at this site is unchanged since the date that the Control was put in-place, or was last approved by the Department;

(b) nothing has occurred that would impair the ability of such Control, to protect public health and the environment;

(c) nothing has occurred that would constitute a violation or failure to comply with the Site Management Plan for this Control; and

(d) access to the site will continue to be provided to the Department, to evaluate the remedy, including access to evaluate the continued maintenance of this Control.

(e) if a financial assurance mechanism is required by the oversight document for the site, the mechanism remains valid and sufficient for its intended purpose established in the document.

IC/EC CERTIFICATIONS
SITE NOs. C915198 through C915198L

Box 5

SITE OWNER OR DESIGNATED REPRESENTATIVE SIGNATURE

I certify that all information and statements in Boxes 2 & 3 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I _____ at _____,
print name print business address

am certifying as _____(Owner or Remedial Party)

for the Site named in the Site Details Section of this form.

_____ _____
Signature of Owner or Remedial Party Rendering Certification Date

Box 6

QUALIFIED ENVIRONMENTAL PROFESSIONAL (QEP) SIGNATURE

I certify that all information and statements in Box 4 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I _____ at _____,
print name print business address

am certifying as a Qualified Environmental Professional for the _____

(Owner or Remedial Party) for the Site named in the Site Details Section of this form.

_____ _____ _____
Signature of Qualified Environmental Professional, for the Owner or Remedial Party, Rendering Certification | Stamp (if Required) | Date

Enclosure 2

Certification of Institutional Controls/ Engineering Controls (ICs/ECs)
Step-by-Step Instructions, Certification Requirements and Definitions

The Owner, or Remedial Party, and when necessary, a Professional Engineer (P.E.), or the Qualified Environmental Professional (QEP), must review and complete the IC/EC Certification Form, sign the IC/EC Certifications Signature Page, and return it, along with the Periodic Review Report (PRR), within 45 days of the date of this notice.

Please use the following instructions to complete the IC/EC Certification.

I. Verification of Site Details (Box 1 and Box 2):

Answer the six questions in the Verification of Site Details Section. Questions 5 and 6 refer to only sites in the Brownfield Cleanup Program. ECL Section 27-1415-7(c) is included in **IV. IC/EC Certification Requirements**. The Owner and/or your P.E. or QEP may include handwritten changes and/or other supporting documentation, as necessary.

II. Verification of Institutional / Engineering Controls (Box 3 and Box 4)

Review the listed Institutional / Engineering Controls, confirming that all existing controls are listed, and that all existing controls are still applicable. If there is a control that is no longer applicable the Owner / Remedial Party is to petition the Department requesting approval to remove the control.

2. Select "YES" or "NO" for **Control Certification** for each IC/EC, based on Sections (a)-(e) of the **Control Certification Statement**.

   If the Department concurs with the explanation, the corrective measures, and the proposed schedule, a letter authorizing the implementation of those corrective measures will be issued by the Project Manager. If the Department has any questions or concerns regarding the completion of the certification, the Project Manager will contact you.

3. If you cannot certify "Yes" for each Control, please continue to complete the remainder of this **Control Certification** form. Attach supporting documentation that explains why the **Control Certification** cannot be rendered, as well as a statement of proposed corrective measures, and an associated schedule for completing the corrective measures. Note that this **Control Certification** form must be submitted even if an IC or EC cannot be certified; however, the certification process will not be considered complete until corrective action is conducted.

   If the Department concurs with the explanation, the corrective measures, and the proposed schedule, a letter authorizing the implementation of those corrective measures will be issued by the Project Manager. Once the corrective measures are complete a new Periodic Review Report (with IC/EC Certification) is to be submitted within 45 days to the Department. If the Department has any questions or concerns regarding the PRR and/or completion of the IC/EC Certification, the Project Manager will contact you.

III. IC/EC Certification by Signature (Box 5 and Box 6):

1. If you certified "Yes" for each Control, please complete and sign the IC/EC Certifications page. To determine WHO signs the **IC/EC Certification,** please use Table 1. Signature Requirements for the IC/EC Certification, which follows.

Table 1. Signature Requirements for Control Certification Page

Type of Control	Example of IC/EC	Required Signatures
IC only	Environmental Easement Deed Restriction.	A site or property owner or remedial party.
IC with an EC which does not include a treatment system or engineered caps.	Fence, Clean Soil Cover, Individual House Water Treatment System, Vapor Mitigation System	A site or property owner or remedial party, and a QEP. (P.E. license not required)
IC with an EC that includes treatment system or an engineered cap.	Pump & Treat System providing hydraulic control of a plume, Part 360 Cap.	A site or property owner or remedial party, and a QEP with a P.E. license.

IV. IC/EC Certification Requirements:

Division of Environmental Remediation Program Policy requires periodic certification of IC(s) and EC(s) as follows:

For Environmental Restoration Projects: N.Y. Envtl Conserv.Law Section 56-0503 (Environmental restoration projects; state assistance)

For State Superfund Projects: Envtl Conserv.Law Section 27-1318. (Institutional and engineering controls)

For Brownfields Cleanup Program Projects: Envtl Conserv.Law Section 27-1415. (Remedial program requirements)

Envtl Conserv.Law Section 27-1415-7(c) states:

(c) At non-significant threat sites where contaminants in groundwater at the site boundary contravene drinking water standards, such certification shall also certify that no new information has come to the owner's attention, including groundwater monitoring data from wells located at the site boundary, if any, to indicate that the assumptions made in the qualitative exposure assessment of offsite contamination are no longer valid. Every five years the owner at such sites shall certify that the assumptions made in the qualitative exposure assessment remain valid. The requirement to provide such certifications may be terminated by a written determination by the Commissioner in consultation with the Commissioner of Health, after notice to the parties on the brownfield site contact list and a public comment period of thirty days.

Voluntary Cleanup Program: Applicable program guidance.

Petroleum Remediation Program: Applicable program guidance.

Federal Brownfields: Applicable program guidance.

Manufactured Gas Plant Projects: Applicable program guidance (including non-registry listed MGPs).

WHERE to mail the signed Certification Form by March 1st of each year (or within 45 days of the date of the Department notice letter):

New York State Department of Environmental Conservation
Division of Environmental Remediation

Attn: Division of Environmental Remediation – North Section
NYSDEC
270 Michigan Avenue
Buffalo, NY 14203-2999

Please note that extra postage may be required.

V. Definitions

"Engineering Control" (EC), means any physical barrier or method employed to actively or passively contain, stabilize, or monitor contamination, restrict the movement of contamination to ensure the long-term effectiveness of a remedial program, or eliminate potential exposure pathways to contamination. Engineering controls include, but are not limited to, pavement, caps, covers, subsurface barriers, vapor barriers, slurry walls, building ventilation systems, fences, access controls, provision of alternative water supplies via connection to an existing public water supply, adding treatment technologies to such water supplies, and installing filtration devices on private water supplies.

"Institutional Control" (IC), means any non-physical means of enforcing a restriction on the use of real property that limits human and environmental exposure, restricts the use of groundwater, provides notice to potential owners, operators, or members of the public, or prevents actions that would interfere with the effectiveness of a remedial program or with the effectiveness and/or integrity of operation, maintenance, or monitoring activities at or pertaining to a remedial site.

"Professional Engineer" (P.E.) means an individual or firm licensed or otherwise authorized under article 145 of the Education Law of the State of New York to practice engineering.

"Property Owner" means, for purposes of an IC/EC certification, the actual owner of a property. If the site has multiple properties with different owners, the Department requires that the owners be represented by a single representative to sign the certification.

"Oversight Document" means any document the Department issues pursuant to each Remedial Program (see below) to define the role of a person participating in the investigation and/or remediation of a site or area(s) of concern. Examples for the various programs are as follows:

BCP (after approval of the BCP application by DEC) - Brownfield Site Cleanup Agreement.
ERP (after approval of the ERP application by DEC) - State Assistance Contract.
Federal Superfund Sites - Federal Consent Decrees, Administrative Orders on Consent or Unilateral Orders issued pursuant to CERCLA.
Oil Spill Program - Order on Consent, or Stipulation pursuant to Article 12 of the Navigation Law (and the New York Environmental Conservation Law).
State Superfund Program - Administrative Consent Order, Record of Decision.
VCP (after approval of the VCP application by DEC) - Voluntary Cleanup Agreement.
RCRA Corrective Action Sites- Federal Consent Decrees, Administrative Orders on Consent or permit conditions issued pursuant to RCRA.

“Qualified Environmental Professional” (QEP), means a person who possesses sufficient specific education, training, and experience necessary to exercise professional judgment to develop opinions and conclusions regarding the presence of releases or threatened releases to the surface or subsurface of a property or off-site areas, sufficient to meet the objectives and performance factors for the areas of practice identified by this Part. Such a person must:

(1) hold a current professional engineer’s or a professional geologist’s license or registration issued by the State or another state, and have the equivalent of three years of full-time relevant experience in site investigation and remediation of the type detailed in this Part; or

(2) be a site remediation professional licensed or certified by the federal government, a state or a recognized accrediting agency, to perform investigation or remediation tasks consistent with Department guidance, and have the equivalent of three years of full-time relevant experience.

“Qualitative Exposure Assessment” means a qualitative assessment to determine the route, intensity, frequency, and duration of actual or potential exposures of humans and/or fish and wildlife to contaminants.

“Remedial Party” means a person implementing a remedial program at a remedial site pursuant to an order, agreement or State assistance contract with the Department.

“Site Management” (SM) means the activities undertaken as the last phase of the remedial program at a site, which continue after a Certificate of Completion is issued. Site management is conducted in accordance with a site management plan, which identifies and implements the institutional and engineering controls required for a site, as well as any necessary monitoring and/or operation and maintenance of the remedy.

“Site Management Plan” (SMP) means a document which details the steps necessary to assure that the institutional and engineering controls required for a site are in-place, and any physical components of the remedy are operated, maintained and monitored to assure their continued effectiveness, developed pursuant to Section 6 (DER10 Technical Guide).

“Site Owner” means the actual owner of a site. If the site has multiple owners of multiple properties with ICs and/or ECs, the Department requires that the owners designate a single representative for IC/EC Certification activities.

APPENDIX G

QUALITY ASSURANCE PROJECT PLAN

BROWNFIELD CLEANUP PROGRAM

APPENDIX G
QUALITY ASSURANCE PROJECT PLAN

TECUMSEH PHASE II BUSINESS PARK
NYSDEC SITE NUMBERS: C915198 through C915198L
LACKAWANNA, NEW YORK

December 2013 0071-012-322

Prepared by:

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QUALITY ASSURANCE PROJECT PLAN (QAPP)
TECUMSEH PHASE II BUSINESS PARK

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1.0 INTRODUCTION

This Quality Assurance Project Plan (QAPP) is an appendix to the Site Management Plan (SMP), a required element of the remedial program at the Phase II Business Park (hereinafter referred to as the "Controlled Property") under the New York State (NYS) Brownfield Cleanup Program (BCP), administered by New York State Department of Environmental Conservation (NYSDEC). These BCP Sites were remediated in accordance with Brownfield Cleanup Agreement (BCA) Index #B9-0696-05-06(B), which was executed on March 14, 2007 and amended on August 20, 2012.

1.1 Site Location and Description

The Controlled Property is located in the City of Lackawanna, County of Erie, New York and is identified as a portion of tax parcel SBL#141.11-1-50 on the Erie County Tax Map. The Controlled Property is an approximate 143-acre area bounded by the Tecumseh Phase I and IA Business Parks to the north; South Buffalo Railroad Company to the south; Tecumseh Phase III Business Park and South Return Water Trench (SRWT) to the west; and Route 5 to the east. The boundaries of the Controlled Property as well as the boundaries of the individual Sites contained therein are more fully described in the Environmental Easement (see Appendix A of the SMP).

1.2 Site History

The approximate 143-acre Controlled Property formerly housed several facilities used in Bethlehem Steel Corporation's (BSC's) steel manufacturing processes. These included a pure oxygen generating station (known as South Linde Area); various mills; structural shipping yard; car repair shop; metal storage; and miscellaneous office production support buildings. Five historical Solid Waste Management Units (SWMUs) (i.e., P-38 through P-42) are present within the Controlled Property. BSC performed assessments for these SWMUs during a Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) and subsequent RCRA Facility Investigation (RFI). Based on the findings, USEPA Region II issued "No Further Action" determination for the identified SWMUs within the Controlled Property.

The Controlled Property contains few structural remnants and other features associated with historic integrated steel-making facilities. These include the former 54" Bar Mill building; two separate electrical transformer stations; a former storage/welfare building to the south of Smokes Creek; the South Linde Area groundwater treatment system; and remnants of overhead lines, access roads, electrical power lines, and railroad tracks. Immediately east of the Site boundary is a man-made drainage channel designated as the SRWT that begins near WQCS No. 3 and flows south to Smokes Creek (see Figure 2). Historically and currently, the trench collects and discharges groundwater and storm water to Smokes Creek under active SPDES Permit No. NY-0269310. With the exception of treated groundwater discharges from the South Linde pump and treat system, there are no active outfalls into the SRWT from the Controlled Property.

2.0 PROJECT ORGANIZATION AND RESPONSIBILITY

The following section provides a generic organization for sampling activities, including roles, responsibilities, and required qualifications of these organizations.

2.1 NYSDEC and NYSDOH

It is the responsibility of the NYSDEC, in conjunction with the New York State Department of Health (NYSDOH), to review the project documents for completeness and conformance with the site-specific cleanup objectives and to make a decision to accept or reject these documents based on this review. The NYSDEC also has the responsibility and authority to review and approve all QA documentation collected during brownfield cleanup construction and to confirm that the QA Plan was followed.

2.2 Site Owner

The Site Owner, or holder of the certificate of completion (COC), will be responsible for complying with the QA requirements as specified herein and for monitoring and controlling the quality of the Brownfield cleanup activities either directly or through their designated environmental consultant and/or legal counsel. The Site Owner will also have the authority to select Contractor(s) to assist them in fulfilling these responsibilities. The Site Owner is responsible for implementing the project, and has the authority to commit the resources necessary to meet project objectives and requirements.

2.3 Project Manager

The Project Manager has the responsibility for ensuring that the project meets the overall project objectives, reports directly to the Site Owner, coordinates with the NYSDEC/NYSDOH Project Coordinators, and is responsible for technical and project oversight. The PM will:

- Define project objectives and develop a detailed work plan schedule.
- Establish project policy and procedures to address the specific needs of the project as a whole, as well as the objectives of each task.
- Acquire and apply technical and corporate resources as needed to assure performance within budget and schedule constraints.

- Develop and meet ongoing project and/or task staffing requirements, including mechanisms to review and evaluate each task product.
- Review the work performed on each task to assure its quality, responsiveness, and timeliness.
- Review and analyze overall task performance with respect to planned requirements and authorizations.
- Review and approve all deliverables before their submission to NYSDEC.
- Develop and meet ongoing project and/or task staffing requirements, including mechanisms to review and evaluate each task product.
- Ultimately be responsible for the preparation and quality of interim and final reports.
- Represent the project team at meetings.

2.4 Field Team Leader:

The Field Team Leader (FTL) has the responsibility for implementation of specific project tasks identified at the Site, and is responsible for the supervision of project field personnel, subconsultants, and subcontractors. The FTL reports directly to the Project Manager. The FTL will:

- Define daily develop work activities.
- Orient field staff concerning the project's special considerations.
- Monitor and direct subcontractor personnel.
- Review the work performed on each task to ensure its quality, responsiveness, and timeliness.
- Assure that field activities, including sample collection and handling, are carried out in accordance with this QAPP.

2.5 Quality Assurance (QA) Officer

The QA Officer will have direct access to corporate executive staff as necessary, to resolve any QA dispute, and is responsible for auditing the implementation of the QA program in conformance with the demands of specific investigations and policies, and NYSDEC requirements. Specific functions and duties include:

- Performing QA audits on various phases of the field operations.
- Reviewing and approving QA plans and procedures.
- Providing QA technical assistance to project staff.
- Reporting on the adequacy, status, and effectiveness of the QA program on a regular basis to the Project Manager for technical operations.
- Responsible for assuring third party data review of all sample results from the analytical laboratory.

2.6 Laboratory Responsibilities

Any environmental laboratory used for sample analysis for this Site must be an independent, NYSDOH Environmental Laboratory Approval Program (ELAP)-certified facility approved to perform the analyses prescribed herein.

- *Laboratory Director:*

  The Laboratory Director is a technical advisor and is responsible for summarizing and reporting overall unit performance. Responsibilities of the Laboratory Director include:

  - Provide technical, operational, and administrative leadership.
  - Allocation and management of personnel and equipment resources.
  - Quality performance of the facility.
  - Certification and accreditation activities.
  - Blind and reference sample analysis.

- *Quality Assurance Manager (QA Manager):*

  The QA Manager has the overall responsibility for data after it leaves the laboratory. The QA Manager will be independent of the laboratory but will communicate data issues through the Laboratory Director. In addition, the QA Manager will:

  - Oversee laboratory QA.
  - Oversee QA/QC documentation.
  - Conduct detailed data review.
  - Determine whether to implement laboratory corrective actions, if required.
  - Define appropriate laboratory QA procedures.
  - Prepare laboratory SOPs.

3.0 QUALITY ASSURANCE OBJECTIVES FOR MEASUREMENT DATA

The overall objectives and criteria for assuring quality for this effort are discussed below. This QAPP addresses how the acquisition and handling of samples and the review and reporting of data will be documented. The objectives of this QAPP are to address the following:

- The procedures to be used to collect, preserve, package, and transport groundwater samples.
- Field data collection.
- Record keeping.
- Data management.
- Chain-of-custody procedures.
- Precision, accuracy, completeness, representativeness, for sample analysis and data management under EPA analytical methods.

Tables 1 and 2 provide analytical methods and detection/reporting limits for chemical parameters that may be analyzed. In addition, water levels and select water quality parameters (i.e., pH, turbidity, specific conductance, and temperature) will be measured in the field as described in the FOPs located in the SMP

The goals for precision, accuracy, and completeness intended for use on this project are discussed in Sections 3.1 through 3.3 of this QAPP. All data will be reported completely. No data will be omitted unless an error occurred in the analyses or the run was invalidated because of QC sample recovery or poor precision.

3.1 Precision

Precision is a measurement of the degree to which two or more measurements are in agreement, which is quantitatively assessed based on the standard deviation. Precision in the laboratory is assessed through the calculation of relative percent difference (RPD) and relative calculation of relative standard deviations (RSD) for three or more replicate samples. Table 3 provides general precision goals.

Laboratory precision will be assessed through the analysis of matrix spike/matrix spike duplicate (MS/MSD) and field duplicate samples for organic parameters. For inorganic

parameters, precision will be assessed through the analysis of matrix spike/duplicates field duplicate pairs. Precision for field parameters, including pH, turbidity, specific conductance, and temperature will be determined through duplicate analysis of 1 in every 20 samples. Table 4 provides precision control limits for field-measured parameters.

3.2 Accuracy

Accuracy is the degree of agreement between an observed value and an accepted reference of true value. Accuracy in the field is assessed through the use of field blanks and trip blanks and through the adherence to all sample handling, preservation, and holding times. One trip blank will accompany each batch of water matrix sample containers shipped to the laboratory for volatile organic chemical analysis. Laboratory accuracy is assessed through the analysis of a matrix spike/matrix spike duplicate (MS/MSD) (1 per 20 samples), standard reference materials (SRM), laboratory control samples (LCS), and surrogate compounds, and the determination of percent recoveries. The equation to be used for accuracy for this investigation is found in Section 10.1 of this QAPP. Table 3 gives accuracy control limits for the laboratory.

3.3 Completeness

Data completeness is a measure of the amount of valid data obtained from a prescribed measurement system as compared with that expected and required to meet the project goals. Laboratory and field completeness will be addressed by applying data quality checks and assessments described in Section 3.1 and 3.2 and Section 7.0 to ensure that the data collected are valid and significant.

As shown on Table 3, the laboratory completeness objectives will be 90 percent or greater. A third party data validator will follow procedures described in Section 7.2 to assess the completeness and validity of laboratory data deliverables. For this investigation, 100 percent of all laboratory analytical results will undergo third party data review. The completeness of an analysis will be documented by including in the report sufficient information to allow the data validator to assess the quality of the results.

Raw data such as chromatograms, spectra, calibration data, laboratory worksheets and notes, etc will not be produced with the analytical data reporting package but will be stored with the sample results in the laboratory and made available upon request, if necessary, to

substantiate analytical results. The raw data will be archived for at least two years by the laboratory. The laboratory will retain all analytical information; regardless of whether the substantiation of results is requested.

3.4 Data Representativeness

Data representativeness expresses the degree to which data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition within a defined spatial and/or temporal boundary. All proposed field-testing and measurement procedures were selected to maximize the degree to which the field data will represent the conditions at the Site, and the matrix being sampled or analyzed.

As described in Section 8.0, Performance System Audits and the proper execution of field activities are the main mechanism for ensuring data representativeness. Representativeness in the laboratory is ensured through the use of the proper analytical procedures, appropriate methods, meeting sample holding times, and analyzing and assessing field duplicate samples.

3.5 Level of QC Effort for Sample Parameters

Field blank, method blank, trip blank, field duplicate, laboratory duplicate, laboratory control, standard reference materials (SRM) and matrix spike samples will be analyzed to assess the quality of the data resulting from the field sampling and analytical programs. QC samples are discussed below.

- Field and trip blanks consisting of distilled water will be submitted to the analytical laboratories to provide the means to assess the quality of the data resulting from the field-sampling program. Field (equipment) blank samples are analyzed to check for procedural chemical constituents at the facility that may cause sample contamination. Trip blanks are used to assess the potential for contamination of samples due to contaminant migration during sample shipment and storage.
- Method blank samples are generated within the laboratory and used to assess contamination resulting from laboratory procedures.
- Duplicate samples are analyzed to check for sampling and analytical reproducibility.

- MS/MSD and MS/Duplicate samples provide information about the effect of the sample matrix on the digestion and measurement methodology. Depending on site-specific circumstances, one MS/MSD or MS/Duplicate should be collected for every 20 or fewer investigative samples to be analyzed for organic and inorganic chemicals of a given matrix.

The general level of QC effort will be one field (blind) duplicate and one field blank (when non-dedicated equipment is used) for every 20 or fewer investigative samples of a given matrix. Additional sample volume will also be provided to the laboratory to allow one site-specific MS/MSD or MS/Duplicate for every 20 or fewer investigative samples of a given matrix. One trip blank consisting of distilled, deionized water will be included along with each sample delivery group of aqueous VOC samples.

4.0 CUSTODY PROCEDURES

Sample custody is controlled and maintained through the chain-of-custody procedures. Chain of custody is the means by which the possession and handling of samples will be tracked from the source (field) to their final disposition, the laboratory. A sample is considered to be in a person's custody if it is in the person's possession or it is in the person's view after being in his or her possession or it was in that person's possession and that person has locked it in a vehicle or room. Sample containers will be cleaned and preserved at the laboratory before shipment to the Site.

4.1 Field Custody Procedures

Field logbooks and appropriate field forms will provide the means of recording data collection activities performed during the investigation. As such, entries will be described in as much detail as possible so that persons going to the facility could reconstruct a particular situation without reliance on memory. Field logbooks will be bound field survey books or notebooks. Each logbook will be identified by the project-specific document number. The title page of each logbook will contain the following:

- Person to whom the logbook is assigned
- Logbook number
- Project name
- Project start date
- End date

Entries into the logbook or appropriate field form will contain a variety of information. At the beginning of each logbook entry, the date, start time, weather, names of all sampling team members present, level of personal protection equipment being used, and the signature of the person making the entry will be entered. The names of visitors to the Site, field sampling or investigation team personnel and the purpose of their visit will also be recorded in the field logbook. Measurements made and samples collected will be recorded in the logbook and appropriate field form. All entries will be made in permanent ink, signed, and dated and no erasures will be made. If an incorrect entry is made, the information will be crossed out with a single strike mark that is signed and dated by the sampler. Whenever a sample location is surveyed, which includes compass and distance measurements or, latitude and longitude information (e.g., obtained by using a global positioning system) the location

information shall be recorded. In the event that photographs are taken to document field activities, the number and brief description of the photographs taken will also be recorded. All equipment used to make measurements will be identified, along with the date of calibration.

Samples will be collected following the sampling procedures documented in this QAPP. The equipment used to collect samples will be noted, along with the time of sampling, sample description, depth at which the sample was collected, volume and number of containers. Sample identification numbers will be assigned prior to sample collection. Field duplicate samples, which will receive a separate sample identification number, will be noted under sample description.

The sample packaging and shipment procedures summarized below will ensure that the samples will arrive at the laboratory with the chain-of-custody intact. The protocol for specific sample numbering and other sample designations is included in an FOP provided in Appendix A of this QAPP. Examples of field custody documents and instructions for completion are also presented in Appendix A of this QAPP.

- The field sampler is personally responsible for the care and custody of the samples until they are transferred or properly dispatched. Field procedures have been designed such that as few people as possible will handle the samples.
- All bottles will be identified by the use of sample tags with sample numbers, sampling locations, date/time of collection, and type of analysis. The sample numbering system is presented in the FOP.
- Sample labels will be completed for each sample using waterproof ink unless prohibited by weather conditions. For example, a logbook notation would explain that a pencil was used to fill out the sample label because the ballpoint pen would not function in freezing weather.
- Samples will be accompanied by a properly completed chain-of-custody form. The sample numbers and locations will be listed on the chain-of-custody form. When transferring the possession of samples, the individuals relinquishing and receiving will sign, date, and note the time on the record. This record documents transfer of custody of samples from the sampler to another person, to a mobile laboratory, to the permanent laboratory, or to/from a secure storage area.

Samples will be properly packaged and cooled to 4°C for shipment and dispatched to the appropriate laboratory for analysis, with a separate signed custody record enclosed in and secured to the inside top of each sample box or cooler. Shipping containers will be locked

and secured with strapping tape and custody seals for shipment to the laboratory. The custody seals will be attached to the front right and back left of the cooler and covered with clear plastic tape after being signed by the field team leader. The cooler will be strapped shut with strapping tape in at least two locations.

4.2 Laboratory Custody Procedures

4.2.1 Sample Receipt

A sample custodian is responsible for receiving samples; completing chain-of-custody records; determining and documenting the condition of samples received through the Cooler Receipt and Preservation Form; logging samples into the system based on the order of log-in; and storing samples in appropriate limited-access storage areas. Chain-of-custody documentation is also maintained for the transfer of samples between the laboratory, and for shipment of samples to subcontracted laboratories.

Upon sample receipt, an inventory of shipment contents is compared with the chain-of-custody record, and any discrepancies, including broken containers, inappropriate container materials or preservatives, headspace in volatile organic samples, and incorrect or unclear sample identification, are documented and communicated to the appropriate project manager.

Each sample is given a unique laboratory code and an analytical request form is generated. The analytical request contains pertinent information for each sample, including:

- Client name
- Project number
- Task number
- Purchase order number
- Air bill number
- Chain-of-custody number
- Number of samples
- Sample descriptions
- Sample matrix type
- Date and time of sampling
- Analysis due dates
- Date and time of receipt by lab
- Client sample identification

- Any comments regarding special instructions or discrepancies

4.2.2 Sample Storage

Samples are stored in secure limited-access areas. Walk-in coolers or refrigerators are maintained at 4°C, ± 2°C, or as required by the applicable regulatory program. The temperatures of all refrigerated storage areas are monitored and recorded a minimum of once per day. Deviations of temperature from the applicable range require corrective action, including moving samples to another storage location if necessary.

4.2.3 Sample Custody

Sample custody, as defined by this document, is when any of the following occur:

- It is in someone's actual possession.
- It is in someone's view after being in his or her physical possession.
- It was in someone's possession and then locked, sealed, or secured in a manner that prevents unsuspected tampering.
- It is placed in a designated and secured area.

Samples are removed from storage areas by the sample custodian or analysts and transported to secure laboratory areas for analysis. Access to the laboratory and sample storage areas is restricted to laboratory personnel and escorted visitors only; all areas of the laboratory are therefore considered secure. If required by the applicable regulatory program, internal chain-of-custody is documented in a log by the person moving the samples between laboratory and storage areas.

Laboratory documentation used to establish chain-of-custody and sample identification may include the following:

- Field chain-of-custody forms or other paperwork that arrives with the sample.
- The laboratory chain-of-custody.
- Sample labels or tags are attached to each sample container.
- Sample custody seals.
- Sample preparation logs (i.e., extraction and digestion information) recorded in hardbound laboratory books that are filled out in legible handwriting, and signed and dated by the chemist.

- Sample analysis logs (e.g., metals, GC/MS, etc.) information recorded in hardbound laboratory books that are filled out in legible handwriting, and signed and dated by the chemist.
- Sample storage log (same as the laboratory chain-of-custody).
- Sample disposition log, which documents sample disposal by a contracted waste disposal company.

4.2.4 Sample Tracking

All samples are maintained in the appropriate coolers prior to and after analysis. The analysts remove and return their samples as needed. Samples that require internal chain-of-custody are relinquished to the analysts by the sample custodians. The analyst and sample custodian must sign the original chain-of-custody relinquishing custody of the samples from the sample custodian to the analyst. When the samples are returned, the analyst will sign the original chain-of-custody returning sample custody to the sample custodian. Sample extracts are relinquished to the instrumentation analysts by the preparatory analysts. Each preparation department tracks internal chain-of-custody through their logbooks/ spreadsheets.

Any change in the sample during the time of custody will be noted on the chain-of-custody (e.g., sample breakage or depletion).

4.2.5 Sample Disposal

A minimum of 30 days following completion of the project, or after a period of time specified by any applicable project requirements, sample disposal is performed in compliance with federal, state, and local regulations. Alternatively, samples may be returned to the client by mutual agreement. All available data for each sample, including laboratory analysis results and any information provided by the client, are reviewed before sample disposal.

All samples are characterized according to hazardous/non-hazardous waste criteria and are segregated accordingly. All hazardous waste samples are disposed of according to formal procedures by the laboratory. It should be noted that all waste produced at the laboratory, including the laboratory's own various hazardous waste streams, is treated in accordance with all applicable local and Federal laws.

Complete internal chain-of-custody documentation is maintained for some samples from initial receipt through final disposal. This ensures that an accurate history of the sample from "cradle to grave" is generated.

5.0 CALIBRATION PROCEDURES AND FREQUENCY

This section describes the calibration procedures and the frequency at which these procedures will be performed for both field and laboratory instruments.

5.1 Field Instrument Calibration

Quantitative field data to be obtained during groundwater sampling include pH, turbidity, specific conductance, temperature, and depth to groundwater. Quantitative water level measurements will be obtained with an electronic sounder or steel tape, which require no calibration. Quantitative field data to be obtained during soil sampling include screening for the presence of volatile organic constituents using a photoionization detector (PID). Field instruments used to monitor for these parameters will be calibrated in accordance with their manufacturer's recommendations.

5.2 Laboratory Instrument Calibration

All equipment and instruments used at the laboratory will be operated, maintained, and calibrated according to the manufacturer's guidelines and recommendations, as well as to criteria set forth in the applicable analytical methodology. Operation and calibration will be performed by personnel who have been properly trained in these procedures.

6.0 ANALYTICAL PROCEDURES

The SMP describes the laboratory methods to be employed for post-remedial groundwater sampling. Samples will be analyzed by a NYSDOH ELAP-certified laboratory employing the appropriate analytical protocols and quality assurance procedures for the respective NYSDEC or USEPA methods. Tables 1 and 2 list the constituents of primary concern (COPCs) for soil and groundwater. Table 6 is a summary of the sample containers, volume, preservatives, and holding time requirements.

7.0 DATA REDUCTION, VALIDATION, AND REPORTING

All data generated through field activities, or by the laboratory operation shall be reduced and validated (as required in the SMP) before reported.

7.1 Data Reduction

7.1.1 Field Data Reduction Procedures

Field measurements of pH, turbidity, temperature, specific conductance, water level, and volatile organic vapor content (via the PID) are read directly in the units of final use, as discussed in this QAPP and listed in Table 5. Field personnel are responsible for monitoring the collection and reporting of field data. Field personnel will review field measurements at the time of measurement and will re-measure a parameter as necessary to assure quality and accuracy are maintained.

Field data will be recorded on appropriate field data record forms or the project field book as they are collected and will be maintained in the project file. The Project QA Officer will review field procedures and compare field data to previous measurements to assess comparability and accuracy of the field data measurements.

7.1.2 Laboratory Data Reduction Procedures

Results of laboratory analyses will be reported in units of final use as listed in Table 5. Laboratory calculations will be performed as prescribed for a given analytical method or in conformance with acceptable laboratory standards at the time the calculation is performed.

The laboratory will retain quality assurance/quality control (QA/QC) records for at least five years. Original laboratory reports will be stored in the project files. Copies of raw data will be available for review at the laboratory. Copies of raw data also may be requested as part of the QA/QC review. A Data Usability Summary Report (DUSR), which follows NYSDEC's May 3, 2010 DER-10 (Appendix 2B Guidance for Data Deliverables and the Development of DUSRs) will be developed from a USEPA SW-846 Equivalent Category B deliverable and completed by an independent third party data validator.

7.2 Data Usability Evaluation

If requested by the NYSDEC, data evaluation will be performed by a third party data validator using the most current methods and quality control criteria from the USEPA's Contract Laboratory Program (CLP) *National Functional Guidelines for Organic Data Review* and *National Functional Guidelines for Inorganic Data Review.*

7.3 Data Reporting

7.3.1 Field Data Reporting

All field documents will be accounted for when they are completed. Accountable documents include items such as field notebooks, sample logs, field data records, photographs, data packages, computer disks, and reports.

7.3.2 Laboratory Data Reporting

Analytical data will be summarized in tabular format with such information as sample identification, sample matrix description, parameters analyzed and their corresponding detected concentrations, and the detection limit. Analytical results will be incorporated into reports as data tables, maps showing sampling locations and analytical results, and supporting text.

8.0 PERFORMANCE SYSTEM AUDITS AND FREQUENCY

8.1 Field Performance and System Audits

8.1.1 Internal Field Audits

The QA Officer may conduct internal audits of field activities including sampling and field measurements. These audits will verify that all established procedures are being followed. Internal field audits will be conducted at least once at the beginning of the Site sample collection activities. Project duration may warrant subsequent audits on a monthly basis. The audit program consists of the following:

- Observation of field activities to confirm that procedures are performed in accordance with project protocols and standard accepted methods.
- Review daily field records, monitoring well sampling records, and any other data collection sheets during and after field measurements.

8.1.2 External Field Audits

The NYSDEC Site Project Coordinator may conduct external field audits. External field audits may be conducted any time during the field operations. These audits may or may not be announced and are at the discretion of the NYSDEC.

8.2 Laboratory System Audits

The adequacy and implementation of a laboratory's QA Plan are assessed on a continual basis through systems and performance audits. Systems audits evaluate practice against established quality system objectives and requirements. Performance audits measure the comparability and accuracy of laboratory data through the analysis of reference materials for which the true value is unknown to the analyst. Audits may be performed by the laboratory (internal), or by clients, regulatory agencies, or accreditation bodies (external).

9.0 PREVENTATIVE MAINTENANCE

Each piece of field equipment is checked according to its routine maintenance schedule and before field activities begin. Field equipment that may be used at the Site includes:

- Photoionization detector (PID)
- Water quality meters (includes pH, turbidity, temperature, Eh, and specific conductance)
- Electric water level indicator

Field personnel will report all equipment maintenance and/or replacement needs to the Project QA Officer and will record the information on the daily field record.

10.0 DATA PRECISION, ACCURACY, AND COMPLETENESS EVALUATION

10.1 Accuracy Assessment

Data accuracy, which is assessed for laboratory data only, is based on recoveries, expressed as the percentage of the true (known) concentration, from laboratory spiked samples and QA/QC samples generated by the analytical laboratory.

Percent recovery (%R) for MS/MSD results is determined according to the following equation:

$$R\% = \frac{(A - B) \times 100}{T}$$

Where A = measured concentration after spiking
B = background concentration
T = known true value of spike

Percent recovery (%R) for LCS and surrogate compound results is determined according to the following equation:

$$R\% = \frac{\text{Experimental Concentration}}{\text{Known amount added}} \times 100$$

This information is reviewed periodically by the Project Manager or Project QA Officer. Table 3 presents the goals for the recovery of any constituent in a spiked or QA/QC sample. Table 4 summarizes the accuracy goals for data generated in the field.

10.2 Precision Assessment

For data generated by the laboratory, data precision is estimated by comparing analytical results from duplicate samples. The comparison is made by calculating the relative percent difference (RPD) given by:

$$RPD\% = \frac{2(S_1 - S_2)}{S1 + S2} \times 100$$

Where S_1 = sample result
S_2 = duplicate result

This information is calculated and reviewed periodically by the Project Manager and/or Project QA Officer. Table 3 presents the goals for data precision for duplicate samples. Table 4 summarizes the precision goals for data generated in the field.

10.3 Completeness Assessment

Data completeness will be evaluated by comparing the objectives of sampling efforts with the data obtained and determining whether there are any shortcomings in required information. Completeness is defined as the percentage of valid results according to the equation below:

$$\% \text{ completeness} = \frac{A}{B} \times 100$$

Where: A = number of valid results;
B = total number of possible results

Table 3 presents the goals for data completeness for laboratory measurements. Table 4 summarizes the completeness goals for data generated in the field.

10.4 Assessment of Data

To assess the integrity of the data generated during this investigation, the Project Manager and QA Officer will review the laboratory analytical data and field data in accordance with procedures and protocols outlined in this QAPP. An assessment will be made to determine if the project objectives have been achieved and meet objectives for data integrity.

11.0 CORRECTIVE ACTION

Corrective action is the process of identifying, recommending, approving, and implementing measures to counter unacceptable procedures or out of quality control performance that can affect data quality. Corrective action can occur during field activities, laboratory analyses, data validation, and data assessment. All corrective action proposed and implemented should be documented in the regular quality assurance reports to management. Corrective action should be implemented only after approval by the Project Manager, or his/her designee. If immediate corrective action is required, approvals secured by telephone from the Project Manager should be documented in an additional memorandum.

11.1 Field Corrective Action

If errors in field procedures are discovered during the observation or review of field activities by the Project QA Officer or his/her designee, corrective action will be initiated. Nonconformance to the QA/QC requirements of the field operating procedures will be identified by field audits or immediately by project staff who know or suspect that a procedure is not being performed in accordance with the requirements. The Project QA Officer or his designee will be informed immediately upon discovery of all deficiencies. Timely action will be taken if corrective action is necessary.

Corrective action in the field may be needed when the sample network is changed (i.e., more/less samples, sampling locations other than those specified in the Work Plan, etc.) or when sampling procedures and/or field analytical procedures require modification due to unexpected conditions. In general, the Project Manager and QA Officer may identify the need for corrective action. The Project Manager will approve the corrective measure that will be implemented by the field team. It will be the responsibility of the Project Manager to ensure that corrective action has been implemented.

If the corrective action will supplement the existing sampling using existing and approved procedures in the QAPP, corrective action approved by the Project Manager will be documented. If the corrective actions result in less samples (or analytical fractions), alternate locations, etc., which may result in non-achievement of project QA objectives, it will be necessary that all levels of project management, including the NYSDEC Project Coordinator, concur with the proposed action.

Corrective actions will be implemented and documented in the project field record book. No staff member will initiate corrective action without prior communication of findings through the proper channels. If corrective actions are insufficient, work may be stopped by the NYSDEC Project Coordinator.

If at any time a corrective action issue that directly impacts project data quality objectives is identified, the NYSDEC Project Coordinator will be notified immediately.

11.2 Laboratory Corrective Action

Corrective actions may be initiated if the quality assurance goals are not achieved. The initial step in a corrective action is to instruct the analytical laboratory to examine its procedures to assess whether analytical or computational errors caused the anomalous result. If no error in laboratory procedures or sample collection and handling procedures can be identified, then the Project Manager will assess whether reanalysis or resampling is required or whether any protocol should be modified for future sampling events.

11.3 Data Validation & Assessment Corrective Action

The need for corrective action may be identified during the data validation or assessment processes. Potential types of corrective action may include resampling by the field team, or reinjection/reanalysis of samples by the laboratory.

These actions are dependent upon the ability to mobilize the field team, whether the data to be collected is necessary to meet the QA objectives (e.g., the holding time for samples is not exceeded, etc.). If the data validator identifies a corrective action situation, the Project Manager will be responsible for approving the corrective action implementation. All required corrective actions will be documented by the laboratory Quality Assurance Coordinator.

12.0 QUALITY ASSURANCE REPORTS TO MANAGEMENT

Periodic reports summarizing certain field activities may be required at the Site. Those reports will be the responsibility of the Project Manager and will include the QA Officers input on the accuracy, precision, and completeness of the data, as well as the results of the performance and system audits, and any corrective action needed or taken during the project.

12.1 Contents of Project QA Reports

The progress reports will contain, on a routine basis, a QA section describing all results of field and laboratory audits, all information generated during the period of work activities reflecting on the achievement of specific DQOs, and a summary of corrective action that was implemented, and its immediate results on the project. The status of the project with respect to the Project Schedule included in this QAPP will be determined. Whenever necessary, updates on training provided, changes in key personnel, anticipated problems in the field or laboratory for the coming month that could bear on data quality along with proposed solutions, will be reported. All QA reports will be prepared in written, final format by the project manager or his designee. To the extent possible, assessment of the project should also be performed on the basis of available QC data and overall results in relation to originally targeted objectives.

In the event of an emergency, or in case it is essential to implement corrective action immediately, QA reports can be made by telephone to the appropriate individuals, as identified in the Project Organization and Corrective Action sections of this QAPP. However, these events, and their resolution will be addressed thoroughly in the next periodic progress report.

TABLES

TABLE 1

CONSTITUENTS OF PRIMARY CONCERN (COPCs) FOR SOIL

SITE MANAGEMENT PLAN

Tecumseh Phase II Business Park
Lackawanna, New York

Analyte[1]	CAS Number	Analytical Method [2]	PQL	MDL
STARS Volatile Organic Compounds: (15 compounds) (ug/kg)				
Benzene	*71-43-2*	8021B	1	0.11
n-Butylbenzene	*104-51-8*	8021B	1	1.00
sec-Butylbenzene	*135-98-8*	8021B	1	0.08
tert-Butylbenzene	*98-06-6*	8021B	1	0.12
p-Cymene	*99-87-6*	8021B	1	0.41
Ethylbenzene	*100-41-4*	8021B	1	0.07
Isopropylbenzene	*98-82-8*	8021B	1	0.08
Methyl tert butyl ether	*1634-04-4*	8021B	1	0.06
n-Propylbenzene	*103-65-1*	8021B	1	0.11
Toluene	*108-88-3*	8021B	1	0.04
1,2,4-Trimethylbenzene	*95-63-6*	8021B	1	0.40
1,3,5-Trimethylbenzene	*108-67-8*	8021B	1	0.84
o-Xylene	*95-47-6*	8021B	1	0.01
p-Xylene	*106-42-3*	8021B	1	0.04
m-Xylene	*108-38-3*	8021B	1	0.04
Acenaphthene	*83-32-9*	8270C	330	11.00
Acenaphthylene	*208-96-8*	8270C	330	10.00
Anthracene	*120-12-7*	8270C	330	9.00
Benzo(a)anthracene	*56-55-3*	8270C	330	13.00
Benzo(a)pyrene	*50-32-8*	8270C	330	11.00
Benzo(b)fluoranthene	*205-99-2*	8270C	330	15.00
Benzo(g,h,i)perylene	*191-24-2*	8270C	330	10.00
Benzo(k)fluoranthene	*207-08-9*	8270C	330	17.00
Benzyl alcohol	*100-51-6*	8270C	330	14.00
bis(2-Chloroethoxy)methane	*111-91-1*	8270C	330	14.00
bis(2-Chloroethyl)ether	*111-44-4*	8270C	330	14.00
2,2'-oxybis(1-chloropropane); bis(2-chloroisopropyl)ether	*108-60-1*	8270C	330	14.00
bis(2-Ethylhexyl)phthalate	*117-81-7*	8270C	330	19.00
Butyl benzyl phthalate	*85-68-7*	8270C	330	17.00
4-Bromophenyl phenyl ether	*101-55-3*	8270C	330	11.00
4-Chloroaniline	*106-47-8*	8270C	330	18.00
4-Chloro-3-methylphenol	*59-50-7*	8270C	330	12.00
2-Chloronaphthalene	*91-58-7*	8270C	330	13.00
2-Chlorophenol	*95-57-8*	8270C	330	12.00

TABLE 1

CONSTITUENTS OF PRIMARY CONCERN (COPCs) FOR SOIL

SITE MANAGEMENT PLAN

Tecumseh Phase II Business Park
Lackawanna, New York

Analyte[1]	*CAS Number*	Analytical Method [2]	PQL	MDL
TCL Semi-Volatile Organic Compounds (full list): (69 compounds) (ug/kg) ***[includes Base-Neutrals (black) and Acid Extractables (blue)]***				
4-Chlorophenyl-phenylether	*7005-72-3*	8270C	330	12.00
Chrysene	*218-01-9*	8270C	330	10.00
Dibenzo(a,h)anthracene	*53-70-3*	8270C	330	13.00
Dibenzofuran	*132-64-9*	8270C	330	10.00
3,3'-Dichlorobenzidine	*91-94-1*	8270C	330	148.00
2,4-Dichlorophenol	*120-83-2*	8270C	330	15.00
1,2-Dichlorobenzene	*95-50-1*	8270C	330	15.00
1,3-Dichlorobenzene	*541-73-1*	8270C	330	14.00
1,4-Dichlorobenzene	*106-46-7*	8270C	330	13.00
Diethyl phthalate	*84-66-2*	8270C	330	9.00
2,4-Dimethylphenol	*105-67-9*	8270C	330	33.00
Dimethyl phthalate	*131-11-3*	8270C	330	10.00
Di-n-butyl phthalate	*84-74-2*	8270C	330	11.00
Di-n-octyl phthalate	*117-84-0*	8270C	330	31.00
4,6-Dinitro-2-methylphenol	*534-52-1*	8270C	1600	66.00
2,4-Dinitrophenol	*51-28-5*	8270C	1600	120.00
2,4-Dinitrotoluene	*121-14-2*	8270C	330	33.00
2,6-Dinitrotoluene	*606-20-2*	8270C	330	66.00
Fluoranthene	*206-44-0*	8270C	330	12.00
Fluorene	*86-73-7*	8270C	330	10.00
Hexachlorobenzene	*118-74-1*	8270C	330	11.00
Hexachlorobutadiene	*87-68-3*	8270C	330	13.00
Hexachlorocyclopentadiene	*77-47-4*	8270C	330	12.00
Hexachloroethane	*67-72-1*	8270C	330	14.00
Indeno(1,2,3-cd)pyrene	*193-39-5*	8270C	330	11.00
Isophorone	*78-59-1*	8270C	330	13.00
2-Methylnaphthalene	*91-57-6*	8270C	330	14.00
2-Methylphenol (o-Cresol)	*95-48-7*	8270C	330	33.00
4-Methylphenol (p-Cresol)	*106-44-5*	8270C	330	14.00
Naphthalene	*91-20-3*	8270C	330	14.00
2-Nitroaniline	*88-74-4*	8270C	1600	12.00
3-Nitroaniline	*99-09-2*	8270C	1600	17.00
4-Nitroaniline	*100-01-6*	8270C	1600	66.00
Nitrobenzene	*98-95-3*	8270C	330	12.00

TABLE 1

CONSTITUENTS OF PRIMARY CONCERN (COPCs) FOR SOIL

SITE MANAGEMENT PLAN

Tecumseh Phase II Business Park
Lackawanna, New York

Analyte[1]	CAS Number	Analytical Method [2]	PQL	MDL
TCL Semi-Volatile Organic Compounds (full list): (69 compounds) (ug/kg) ***[includes Base-Neutrals (black) and Acid Extractables (blue)]***				
2-Nitrophenol	*88-75-5*	8270C	330	66.00
4-Nitrophenol	*100-02-7*	8270C	1600	66.00
N-Nitrosodiphenylamine	*86-30-6*	8270C	330	29.00
N-Nitroso-di-n-propylamine	*621-64-7*	8270C	330	13.00
Pentachlorophenol	*87-86-5*	8270C	1600	50.00
Phenanthrene	*85-01-8*	8270C	330	11.00
Phenol	*108-95-2*	8270C	330	11.00
Pyrene	*129-00-0*	8270C	330	11.00
1,2,4-Trichlorobenzene	*120-82-1*	8270C	330	18.00
2,4,5-Trichlorophenol	*95-95-4*	8270C	800	14.00
2,4,6-Trichlorophenol	*88-06-2*	8270C	330	13.00
TAL Metals (modified): (12 compounds) (mg/L) - ***[site specific metals in blue]***				
Antimony	*7440-38-2*	6010B	15	0.69
Arsenic	*7440-38-2*	6010B	2	0.37
Barium	*7440-39-3*	6010B	0.5	0.05
Cadmium	*7440-43-9*	6010B	0.2	0.06
Chromium	*7440-47-3*	6010B	0.5	0.14
Lead	*7439-92-1*	6010B	1	0.19
Mercury	*7439-97-6*	7471A	0.02	0.0071
Nickel	*7440-02-0*	6010B	0.5	0.12
Potassium	*7440-09-7*	6010B	30	8.4
Selenium	*7782-49-2*	6010B	4	0.48
Silver	*7440-22-4*	6010B	0.5	0.15
Thallium	*7440-28-0*	6010B	6	0.66

Notes:

1. Analytes as per NYSDEC and USEPA list of parameters.
2. Analytical methods per USEPA publication, SW-846, "Test Methods for Evaluating Solid Waste," 3rd Ed.

Acronyms/Abbreviations:

CAS = Chemical Abstracts Service registry number.
MDL = Method Detection Limit provided by STL
PQL = Practical Quantitation Limit
mg/kg = milligrams per kilogram
ug/kg = micrograms per kilogram

TABLE 2

CONSTITUENTS OF PRIMARY CONCERN (COPCs) FOR GROUNDWATER

SITE MANAGEMENT PLAN

Tecumseh Phase II Business Park
Lackawanna, New York

Analyte[1]	*CAS Number*	Analytical Method [2]	PQL	MDL
STARS Volatile Organic Compounds: (15 compounds) (ug/L)				
Benzene	*71-43-2*	8021B	0.2	0.02
n-Butylbenzene	*104-51-8*	8021B	0.4	0.03
sec-Butylbenzene	*135-98-8*	8021B	0.4	0.02
tert-Butylbenzene	*98-06-6*	8021B	0.4	0.03
p-Cymene	*99-87-6*	8021B	0.4	0.28
Ethylbenzene	*100-41-4*	8021B	0.2	0.03
Isopropylbenzene	*98-82-8*	8021B	0.2	0.03
Methyl tert butyl ether	*1634-04-4*	8021B	0.4	0.23
n-Propylbenzene	*103-65-1*	8021B	0.2	0.03
Toluene	*108-88-3*	8021B	0.2	0.04
1,2,4-Trimethylbenzene	*95-63-6*	8021B	0.2	0.03
1,3,5-Trimethylbenzene	*108-67-8*	8021B	0.2	0.17
o-Xylene	*95-47-6*	8021B	0.2	0.09
p-Xylene	*106-42-3*	8021B	0.4	0.25
m-Xylene	*108-38-3*	8021B	0.4	0.25
TCL Semi-Volatile Organic Compounds (full list): (69 compounds) (ug/L) [includes Base-Neutrals (black) and Acid Extractables (blue)]				
Acenaphthene	*83-32-9*	8270C	10	0.15
Acenaphthylene	*208-96-8*	8270C	10	0.09
Anthracene	*120-12-7*	8270C	10	0.10
Benzo(a)anthracene	*56-55-3*	8270C	10	0.16
Benzo(a)pyrene	*50-32-8*	8270C	10	0.09
Benzo(b)fluoranthene	*205-99-2*	8270C	10	0.17
Benzo(g,h,i)perylene	*191-24-2*	8270C	10	0.12
Benzo(k)fluoranthene	*207-08-9*	8270C	10	0.12
Benzyl alcohol	*100-51-6*	8270C	20	1.79
bis(2-Chloroethoxy)methane	*111-91-1*	8270C	10	2.10
bis(2-Chloroethyl)ether	*111-44-4*	8270C	10	2.44
2,2'-oxybis(1-chloropropane); bis(2-chloroisopropyl)ether	*108-60-1*	8270C	10	1.77
bis(2-Ethylhexyl)phthalate	*117-81-7*	8270C	10	2.80
Butyl benzyl phthalate	*85-68-7*	8270C	10	7.47
4-Bromophenyl phenyl ether	*101-55-3*	8270C	10	2.50
4-Chloroaniline	*106-47-8*	8270C	10	1.05
4-Chloro-3-methylphenol	*59-50-7*	8270C	10	2.73
2-Chloronaphthalene	*91-58-7*	8270C	10	1.94

TABLE 2

CONSTITUENTS OF PRIMARY CONCERN (COPCs) FOR GROUNDWATER

SITE MANAGEMENT PLAN

Tecumseh Phase II Business Park
Lackawanna, New York

Analyte[1]	*CAS Number*	Analytical Method [2]	PQL	MDL
TCL Semi-Volatile Organic Compounds (full list): (69 compounds) (ug/L) [includes Base-Neutrals (black) and Acid Extractables (blue)]				
2-Chlorophenol	*95-57-8*	8270C	10	1.00
4-Chlorophenyl-phenylether	*7005-72-3*	8270C	10	2.42
Chrysene	*218-01-9*	8270C	10	0.17
Dibenzo(a,h)anthracene	*53-70-3*	8270C	10	0.12
Dibenzofuran	*132-64-9*	8270C	10	0.12
3,3'-Dichlorobenzidine	*91-94-1*	8270C	20	7.43
2,4-Dichlorophenol	*120-83-2*	8270C	10	2.13
1,2-Dichlorobenzene	*95-50-1*	8270C	10	2.50
1,3-Dichlorobenzene	*541-73-1*	8270C	10	2.43
1,4-Dichlorobenzene	*106-46-7*	8270C	10	2.45
Diethyl phthalate	*84-66-2*	8270C	10	2.99
2,4-Dimethylphenol	*105-67-9*	8270C	10	1.60
Dimethyl phthalate	*131-11-3*	8270C	10	2.53
Di-n-butyl phthalate	*84-74-2*	8270C	10	6.64
Di-n-octyl phthalate	*117-84-0*	8270C	10	6.95
4,6-Dinitro-2-methylphenol	*534-52-1*	8270C	50	7.62
2,4-Dinitrophenol	*51-28-5*	8270C	50	10.51
2,4-Dinitrotoluene	*121-14-2*	8270C	10	3.52
2,6-Dinitrotoluene	*606-20-2*	8270C	10	2.67
Fluoranthene	*206-44-0*	8270C	10	0.14
Fluorene	*86-73-7*	8270C	10	0.10
Hexachlorobenzene	*118-74-1*	8270C	10	1.14
Hexachlorobutadiene	*87-68-3*	8270C	10	3.50
Hexachlorocyclopentadiene	*77-47-4*	8270C	45	23.67
Hexachloroethane	*67-72-1*	8270C	10	3.47
Indeno(1,2,3-cd)pyrene	*193-39-5*	8270C	10	0.13
Isophorone	*78-59-1*	8270C	10	2.51
2-Methylnaphthalene	*91-57-6*	8270C	10	0.09
2-Methylphenol (o-Cresol)	*95-48-7*	8270C	10	2.07
4-Methylphenol (p-Cresol)	*106-44-5*	8270C	10	1.09
Naphthalene	*91-20-3*	8270C	10	0.11
2-Nitroaniline	*88-74-4*	8270C	50	4.50
3-Nitroaniline	*99-09-2*	8270C	50	3.50
4-Nitroaniline	*100-01-6*	8270C	50	3.14
Nitrobenzene	*98-95-3*	8270C	10	2.27
2-Nitrophenol	*88-75-5*	8270C	10	2.00

TABLE 2

CONSTITUENTS OF PRIMARY CONCERN (COPCs) FOR GROUNDWATER

SITE MANAGEMENT PLAN

Tecumseh Phase II Business Park
Lackawanna, New York

Analyte[1]	*CAS Number*	Analytical Method [2]	PQL	MDL
TCL Semi-Volatile Organic Compounds (full list): (69 compounds) (ug/L) [includes Base-Neutrals (black) and Acid Extractables (blue)]				
4-Nitrophenol	*100-02-7*	8270C	50	15.00
N-Nitrosodiphenylamine	*86-30-6*	8270C	10	2.29
N-Nitroso-di-n-propylamine	*621-64-7*	8270C	10	1.66
Pentachlorophenol	*87-86-5*	8270C	50	9.54
Phenanthrene	*85-01-8*	8270C	10	0.14
Phenol	*108-95-2*	8270C	10	1.10
Pyrene	*129-00-0*	8270C	10	0.17
1,2,4-Trichlorobenzene	*120-82-1*	8270C	10	2.45
2,4,5-Trichlorophenol	*95-95-4*	8270C	10	3.21
2,4,6-Trichlorophenol	*88-06-2*	8270C	10	1.92
TAL Metals (modified): (12 compounds) (mg/L) - [site specific metals in blue]				
Antimony	*7440-38-2*	6010B	0.02	0.0055
Arsenic	*7440-38-2*	6010B	0.01	0.00338
Barium	*7440-39-3*	6010B	0.002	0.00017
Cadmium	*7440-43-9*	6010B	0.001	0.00034
Chromium	*7440-47-3*	6010B	0.004	0.0009
Lead	*7439-92-1*	6010B	0.005	0.0016
Mercury	*7439-97-6*	7470A	0.0002	0.00015
Nickel	*7440-02-0*	6010B	0.01	0.0011
Potassium	*7440-09-7*	6010B	0.5	0.039
Selenium	*7782-49-2*	6010B	0.015	0.0061
Silver	*7440-22-4*	6010B	0.003	0.0009
Thallium	*7440-28-0*	6010B	0.02	0.0066

TABLE 2

CONSTITUENTS OF PRIMARY CONCERN (COPCs) FOR GROUNDWATER

SITE MANAGEMENT PLAN

Tecumseh Phase II Business Park
Lackawanna, New York

Analyte[1]	*CAS Number*	Analytical Method [2]	PQL	MDL
Field Parameters: (5 compounds) (units as identified below)				
pH (units)	*NA*	field	NA	NA
Temperature (^{o}C)	*NA*	field	NA	NA
Specific Conductance (uS/mS)	*NA*	field	NA	NA
Turbidity (NTU)	*NA*	field	NA	NA
Dissolved Oxygen	*NA*	field	NA	NA

Notes:

1. Analytes as per NYSDEC and USEPA list of parameters.
2. Analytical methods per USEPA publication, SW-846, "Test Methods for Evaluating Solid Waste", 3rd Ed.

Acronyms/Abbreviations:

CAS = Chemical Abstracts Service registry number.
MDL = Method Detection Limit provided by STL
mg/L = milligrams per liter
mS = milli-Siemans
ug/L = micrograms per liter
uS = micro-Siemans
NA = not applicable
NTU = nephelometric turbidity unit
PQL = Practical Quantitation Limit

TABLE 3

PROJECT GOALS FOR PRECISION, ACCURACY & COMPLETENESS FOR LABORATORY MEASUREMENTS

SITE MANAGEMENT PLAN

Tecumseh Phase II Business Park
Lackawanna, New York

Analytical Method	Precision Goal [1] (RPD) [2]	Accuracy Goal (% R) [3]		Completeness Goal (%)
	Soil & Water	Soil	Water	
STARS 8021B or EPA 8260B	± 30	± 50	± 30	90
EPA 8270C	± 30	± 50	± 30	90
EPA 6010B and EPA 7470A/7471A	± 30	± 50	± 30	90
Water Quality Parameters	± 30	NA	± 30	90

Notes:

1. Precision goals vary depending on the compound being analyzed; the precision goals presented are general in nature.
2. RPD = Relative Percent Difference
3. %R = Percent Recovery

TABLE 4

PROJECT GOALS FOR PRECISION, ACCURACY & COMPLETENESS FOR FIELD MEASUREMENTS

SITE MANAGEMENT PLAN

Tecumseh Phase II Business Park
Lackawanna, New York

Measurement	Units	Precision Goal	Accuracy Goal	Completeness Goal
pH	pH units	± 0.2 unit	± 0.2 unit	90%
Eh	milli-volts (mV)	± 1.0 mV	± 1.0 mV	90%
Temperature	degrees Celsius (^{o}C)	± 0.2 deg. C	± 0.4 deg. C	90%
Turbidity	NTU	± 0.05 NTU	± 0.05 NTU	90%
Specific Conductance	mS/cm at 25^{o}C mS/cm at 25oC	± 100 uS/cm ± 0.1 mS/cm	± 100 uS/cm ± 0.1 mS/cm	90%
Dissolved Oxygen	ppm	± 0.3 ppm	± 0.3 ppm	90%
Water Level	fbTOR	± 0.01 unit	± 0.01 unit	90%

Acronyms/Abbreviations:

fbTOR = feet below top of riser
mS = milli-Siemans
NTU = nephelometric turbidity unit
ug/L = micrograms per liter

TABLE 5

DATA MEASUREMENT UNITS FOR FIELD & LABORATORY PARAMETERS

SITE MANAGEMENT PLAN

Tecumseh Phase II Business Park
Lackawanna, New York

Parameter	Units
Water Level	feet below top of riser (fbTOR)
pH	pH units
Eh	milli-volts (mV)
Temperature	degrees Celsius (^{o}C)
Turbidity	Nephelometric Turbidity Unit (NTU)
Specific Conductance	microsiemens per centimeter at 25^{o}C (µS/cm) millisiemens per centimeter at 25^{o}C (mS/cm)
Dissolved Oxygen (DO)	parts per million (ppm)
Concentration of parameter in soil sample	micrograms per kilogram (mg/kg) organic milligrams per kilogram (mg/kg) inorganic
Concentration of parameter in groundwater sample	micrograms per liter (mg/L) organic milligrams per liter (mg/L) inorganic
Hydraulic Conductivity	centimeters per second (cm/sec)
Photoionization Detector (PID)	parts per million by volume (ppmv)

TABLE 6

SAMPLE CONTAINER, VOLUME, PRESERVATION & HOLDING TIME REQUIREMENTS

SITE MANAGEMENT PLAN

Tecumseh Phase II Business Park
Lackawanna, New York

Matrix	Parameter [1]	Method [1]	Container Type	Minimum Volume	Preservation (Cool to 2-4 °C for all samples)	Holding Time from Sample Date
Soil	STARS VOCs	8260B	WMG	16 oz.	Cool to 4 °C, Zero Headspace	14 days
	TCL VOCs	8260B	WMG	16 oz.	Cool to 4 °C, Zero Headspace	14 days
	TCL SVOCs	8270C	WMG	16 oz.	Cool to 4 °C	14 days extrac./40 days
	TAL Metals	6010B/7471B	WMG	4 oz.	Cool to 4 °C	6 months/Hg 26 days
	Cyanide	9021A	WMG	4 oz.	Cool to 4 °C	14 days
	TCLP Lead	6010	WMG	8 oz.	Cool to 4 °C	6 months extrac./6 months
	Ignitability	1010	WMG	8 oz.	Cool to 4 °C	6 months
Groundwater	TCL VOCs + TICs	8260B	glass vial	3 - 4 oz.	Cool to 4 °C, HCl to pH<2,Zero Headspace	14 days
	TCL SVOCs + TICs	8270C	amber glass	1000 mL	Cool to 4 °C	7 days extrac/40 days
	TAL Metals	6010B/7470A	plastic	250 mL	HNO_3 to pH<2, Cool to 4 °C	180 days / Hg 28 days

Notes:

1. EPA-approved methods published in Reference 1 above may be used. The list of analytes, laboratory method, and the method detection limit for each parameter are included in Tables 1 and 2 of the QAPP.

Acronyms:

VOCs = Volatile Organic Compounds
SVOCs = Semi-Volatile Organic Compounds
TCLP = Toxicity Characteristic Leaching Procedure
TCL = Target Compound List
TAL = Target Analyte List
WMG = Wide Mouth Glass

References:

1. Test Methods for Evaluating Solid Wastes, USEPA SW-846, Update III, 1991.

APPENDIX H

SITE-SPECIFIC SMP REQUIREMENTS

APPENDIX H-1

SITE II-1 (C915198)

As the remedial actions are completed on Site II-1 and a Decision Document is prepared, Site-specific SMP requirements will be developed and added to Appendix H-1 as an addendum.

APPENDIX H-2

SITE II-2 (C915198B)

As the remedial actions are completed on Site II-2 and a Decision Document is prepared, Site-specific SMP requirements will be developed and added to Appendix H-2 as an addendum.

APPENDIX H-3

SITE II-3 (C915198C)

As the remedial actions are completed on Site II-3 and a Decision Document is prepared, Site-specific SMP requirements will be developed and added to Appendix H-3 as an addendum.

APPENDIX H-4

SITE II-4 (C915198D)

As the remedial actions are completed on Site II-4 and a Decision Document is prepared, Site-specific SMP requirements will be developed and added to Appendix H-4 as an addendum.

APPENDIX H-5

SITE II-5 (C915198E)

As the remedial actions are completed on Site II-5 and a Decision Document is prepared, Site-specific SMP requirements will be developed and added to Appendix H-5 as an addendum.

APPENDIX H-6

SITE II-6 (C915198F)

As the remedial actions are completed on Site II-6 and a Decision Document is prepared, Site-specific SMP requirements will be developed and added to Appendix H-6 as an addendum.

APPENDIX H-7

SITE II-7 (C915198G)

As the remedial actions are completed on Site II-7 and a Decision Document is prepared, Site-specific SMP requirements will be developed and added to Appendix H-7 as an addendum.

APPENDIX H-8

SITE II-8 (C915198H)

As the remedial actions are completed on Site II-8 and a Decision Document is prepared, Site-specific SMP requirements will be developed and added to Appendix H-8 as an addendum.

APPENDIX H-9

SITE II-9 (C915198I)

As the remedial actions are completed on Site II-9 and a Decision Document is prepared, Site-specific SMP requirements will be developed and added to Appendix H-9 as an addendum.

APPENDIX H-10

SITE II-10 (C915198J)

As the remedial actions are completed on Site II-10 and a Decision Document is prepared, Site-specific SMP requirements will be developed and added to Appendix H-10 as an addendum.

APPENDIX H-11

SITE II-11 (C915198K)

As the remedial actions are completed on Site II-11 and a Decision Document is prepared, Site-specific SMP requirements will be developed and added to Appendix H-11 as an addendum.

APPENDIX H-12

SITE II-12 (C915198L)

As the remedial actions are completed on Site II-12 and a Decision Document is prepared, Site-specific SMP requirements will be developed and added to Appendix H-12 as an addendum.

Appendix 3

Excavation Work Plan

BROWNFIELD CLEANUP PROGRAM

APPENDIX B
EXCAVATION WORK PLAN

TECUMSEH PHASE II BUSINESS PARK
NYSDEC SITE NUMBERS: C915198 through C915198L
LACKAWANNA, NEW YORK

December 2013
Revised July 2021

0071-012-322

Prepared By:

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EXCAVATION WORK PLAN
TECUMSEH PHASE II BUSINESS PARK

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EXCAVATION WORK PLAN
TECUMSEH PHASE II BUSINESS PARK

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1.0 INTRODUCTION

1.1 Purpose and Scope

This document is a required element of the remedial program for the New York State Brownfield Cleanup Program (BCP) Sites within and collectively comprising the property referred to as the "Tecumseh Phase II Business Park," located in City of Lackawanna, Erie County, New York (hereinafter referred to as the "Controlled Property" under the New York State (NYS) Brownfield Cleanup Program (BCP) administered by New York State Department of Environmental Conservation (NYSDEC). The Controlled Property is comprised of an approximate 141-acre area bounded by the Tecumseh Phase I and IA Business Parks to the north; the South Buffalo Railroad Company to the south; Tecumseh Phase III Business Park and South Return Water Trench (SRWT) to the west; and Route 5 to the east (see Figures 1 and 2). As shown on Figure 2, the Controlled Property collectively includes Sites II-1 through II-12 (C915198 through C915198L).

This Excavation Work Plan (EWP) has been prepared by TurnKey Environmental Restoration, LLC (TurnKey) in accordance with NYSDEC Program Policy DER-10 (Ref. 1). An Interim EWP was followed during all ground intrusive activities conducted during site preparation work (e.g., excavation for utility lines, grading work performed in advance of cover placement, etc.) as remedial measures proceeded toward final cleanup and issuance of the Certificate of Completion (COC). In accordance with DER-10 Section 6.1(b)2, the Interim EWP was modified for post-remedial use and has been incorporated into this Excavation Work Plan component of the SMP.

1.2 Notification

At least 15 days prior to the start of any activity that is anticipated to encounter remaining contamination, the Site Owner or their representative will notify the NYSDEC. Currently, this notification will be made to:

Mr. Andrew Zwack
Assistant Engineer
NYSDEC – Region 9
270 Michigan Avenue
Buffalo, NY 14203-2999

This notification will include:

- Depth of work to be performed; location of work; and areal extent.
- A detailed description of plans for re-grading, intrusive elements, or utilities to be installed below the soil cover; estimated volumes of contaminated soil to be excavated; and any work that may impact an existing engineering control. Appropriate locations for staging and stockpiling of non-impacted and impacted (if encountered) soil/fill materials will also be identified.
- A summary of environmental conditions anticipated in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling.
- A schedule for the work, detailing the start and completion of all intrusive work.
- A summary of the applicable components of this EWP.
- A statement that the work will be performed in compliance with this EWP and 29CFR 1910.120.
- A copy of the contractor's health and safety plan, in electronic format, if it differs from the Health and Safety Plan (HASP).
- Identification of disposal facilities for potential waste streams.
- Identification of sources of any anticipated backfill, along with all required analytical testing results.

2.0 SCREENING, SEGREGATION AND STOCKPILING

Requirements for screening, segregation, and stockpiling of excavated soil/fill materials are presented below. As further discussed in Section 3.0, all soil and fill excavated from the Site is to be treated as regulated contaminated material regardless of field evidence of impact. If any such material is removed from the Site it must be transported by a licensed hauler and either treated or disposed at a permitted facility in accordance with all local, State (including 6NYCRR Part 360) and Federal regulations or reused, with NYSDEC pre-approval subject to a 6NYCRR Part 360 Beneficial Use Determination (BUD), at another regulated cleanup site having an Environmental Easement and Site Management Plan.

2.1 Soil Screening and Segregation Methods

Visual, olfactory, and/or instrument (photoionization detector or equivalent)-based, soil screening will be performed by a qualified environmental professional (QEP), as defined by NYSDEC in DER-10 Section 1.3(b)49, or a person under their supervision, during all intrusive activities, as necessary. Additionally, slag encountered will be further field-screened by an experienced technician using a Ludlum Model 2221 Ratemeter/Scaler with a sodium iodide scintillator (2x2 meter) or equivalent for gamma radiation due to its potential to contain technologically enhanced naturally occurring radioactive material (TENORM). Slag screening and TENORM evaluation are further discussed in Section 3.4.4.

Non-impacted soil/fill may be replaced in the excavation or reused on-site in accordance with Section 3.4. If field evidence of potentially impacted soil/fill is encountered during intrusive work, the NYSDEC Project Manager will be contacted, and the contractor will be directed to stockpile the material on polyethylene sheeting in an accessible location near the impacted area. The location of staged materials will be coordinated with the Site Owner but will remain within the same Site as the source to avoid administrative issues associated with import/export of these materials among differing BCP Sites. Field evidence of impact is defined as having readily identifiable visual or olfactory signs of contamination, including product, tars, or elevated photoionization detector (PID) readings (i.e., sustained readings >5 parts per million; ppm). All impacted soil/fill removal work will be directed by an experienced QEP. Removal and stockpiling will continue until visually impacted soil/fill is removed from the limits of the planned excavation or NYSDEC agrees that no further removal of soil/fill is required. If the impact extends beyond the proposed limits of the

excavation the Site Owner will be consulted and a plan for delineation and remediation of the remaining impacted material will be developed.

2.2 Stockpile Methods

Excavated soil/fill will be segregated, based on field screening and its status at the time of the excavation work, into material that can be reused as cover (i.e., if cover soil or NYSDEC approved-slag has been placed), non-impacted material that can be returned to the subsurface, and impacted material that requires treatment or off-site disposal. A continuous berm and/or silt fence will be placed around soil/fill stockpiles. Hay bales will be used as needed near catch basins, surface waters, and other discharge points. Stockpiles will be covered with appropriately anchored tarps or poly sheeting. Stockpiles will be routinely inspected at a minimum once each week and after every storm event. Damaged tarp covers will be promptly replaced.

Results of inspections will be recorded in a logbook, maintained with the Site Owner or Owner's representative, and made available for inspection by NYSDEC.

3.0 EXCAVATION, TRANSPORT, DISPOSAL, AND REUSE

3.1 Materials Excavation and Load Out

A QEP, or person under their supervision, will monitor all intrusive work and the excavation and load-out of all excavated material. The Site Owner and its contractors are responsible for safe execution of all intrusive and other work performed under this EWP; however, any entity performing intrusive work on the Site is required to abide by the requirements identified herein. The QEP will investigate the presence of utilities and easements on the Site and determine whether they pose a risk or impediment to the planned work under this EWP.

Loaded vehicles leaving the Site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State (NYSDOT), local, and all other applicable transportation requirements.

Locations where vehicles enter or exit the Site shall be inspected daily for evidence of off-site soil tracking. The QEP will be responsible for ensuring that all egress points for truck and equipment transport from the Site are clean of dirt and other materials derived from the Site during intrusive excavation activities. If truck tires will be in contact with impacted materials and/or ground conditions result in mud carryout on vehicles a truck wash will be operated on-site. Truck wash waters will be collected and disposed off-site in an appropriate manner. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site-derived materials.

3.2 Material Transport Off-Site

All transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6NYCRR Part 364. Haulers will be appropriately licensed and trucks properly placarded.

Material transported by trucks exiting the Site will be secured with tight-fitting covers; loose-fitting canvas-type truck covers are prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used.

Truck transport routes will be pre-determined for wastes designated as hazardous and requiring off-site transport to a secure landfill (RCRA Subtitle C facility) or other RCRA-permitted Treatment Storage and Disposal Facility (TSDF).

All trucks loaded with Site materials will exit the vicinity of the Site using only NYSDEC-approved truck routes. The route will consider (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting off-site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport. If an alternate RCRA Subtitle C facility or TSDF is employed the corresponding truck transport route shall be provided to the NYSDEC for approval.

Trucks will be prohibited from stopping and idling in the neighborhood outside the Site. Egress points for truck and equipment transport from the Site will be kept clean of dirt and other materials. Queuing of trucks will be performed on-site to minimize off-site disturbance; off-site queuing will be prohibited.

3.3 Materials Disposal Off-Site

All soil/fill/solid waste excavated and removed from the Site will be considered contaminated, regulated material to be transported and treated or disposed at a permitted facility in accordance with all local, State (including 6NYCRR Part 360), and Federal regulations. If alternate off-site disposal of soil/fill from this Site is proposed (e.g., at another regulated brownfield site), a formal request with an associated plan will be made to the NYSDEC. Unregulated off-site management of materials from this Site will not occur without formal NYSDEC approval.

Off-site disposal locations for excavated soils will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal facility (i.e., hazardous waste facility, solid waste landfill, permitted petroleum treatment facility, C/D recycling facility, etc.), if appropriate. The disposal documentation submitted to NYSDEC will include: a summary of disposal quantities, waste profiles, test results, facility acceptance letters, manifests, bills of lading, and facility receipts.

Non-hazardous historic fill and contaminated soils taken off-site will be handled, at minimum, as a municipal solid waste per 6NYCRR Part 360-1.2. Material that does not meet Track 1 unrestricted SCOs is prohibited from being taken to a New York State recycling facility (6NYCRR Part 360-16 Registration Facility).

3.4 Materials Reuse On-Site

3.4.1 Soil/Fill

On-site reuse of soil/fill material is acceptable provided that the material does not exhibit visual or olfactory evidence of contamination and PID measurements of the atmosphere at the soil/fill interface do not exceed 5 ppm above background. The QEP will ensure that procedures defined for materials reuse are followed and that unacceptable material does not remain on-site. On-site material, including historic fill, that is acceptable for re-use on-site will be placed below the engineered cover demarcation layer or impervious surface (if in place at the time of excavation), and will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines.

3.4.2 Petroleum-Impacted Soil/Fill

Petroleum-impacted soil/fill suitable for on-site bioremediation (e.g., materials impacted by non-tarry petroleum hydrocarbons) may be transported, with NYSDEC approval, to a designated portion of the Tecumseh property (specifically one of the Business Parks) for biotreatment. Qualitative assessment of treatment performance will be made based on field assessment of visual and olfactory conditions, with the goal of eliminating gross impacts. Once the soil/fill is considered treated, confirmatory samples will be collected at a frequency of no less than one per 1,000 cubic yards of treated soil/fill. The samples will be analyzed for USEPA Target Compound List (TCL) volatile organic compounds (VOCs) and base-neutral semi-volatile organic compounds (SVOCs) and compared to SCOs to be determined within an action-specific soil biotreatment work plan subject to NYSDEC approval. Once the samples meet these SCOs, the treated soil/fill will be removed and preferably transferred back to the original excavated Site as subgrade material; bioremediated soils will not be considered suitable for use as cover soil. No bioremediated soil/fill will be transported off-site unless deemed necessary due to poor treatment response. In such instance the material will be disposed, with NYSDEC approval, in accordance with Section 3.3.

3.4.3 Debris

Any demolition material proposed for reuse on-site will be sampled for asbestos and the results will be reported to the NYSDEC for acceptance. Concrete crushing or processing on-site will not be performed without prior NYSDEC approval. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the Site will not be reused on-site without prior NYSDEC approval.

3.4.4 Slag

Slag proposed for reuse on-site will be field screened with a 2x2 meter or equivalent for gamma radiation via test pad. If field-screening measurements are 1.5 times background for the Controlled Property, the slag will be stockpiled and evaluated for TENORM. Background levels for the Controlled Property are approximately 5,000 counts per minute (cpm). Therefore, slag measurements below 7,500 cpm will not require further evaluation for reuse. Screening levels above 7,500 cpm will require submission of an action-specific work plan to address additional screening, sampling, analysis, and handling of elevated radiological material. NYSDEC and NYSDOH will be notified of any screening level exceedances.

Test pads will be constructed on an approximately 5-foot by 5-foot by 1-inch thick steel plate. Slag proposed for reuse will be used to create test pads to evaluate the slag. One test pad will be constructed for every 250 cubic yards of slag proposed for reuse unless a different frequency is approved by NYSDEC.

Slag will be placed on the steel plate in an approximate 6- to 8-inch thick lift. The 5-foot by 5-foot slag placement area will be screened with the 2x2 meter to identify location with the "highest" count rate based on the screening. A 1-minute count measurement will be collected from the highest screening location. If the results are less than 7,500 cpm, no further evaluation is required. If the measurement is greater than 7,500 cpm, a slag sample will be collected from the highest screening location and analyzed for Radium-226 via EPA Method 901.1M (21-day ingrowth). The results of the analysis will be provided to the Department and the decision to reuse the slag and/or its final disposition will be made in consultation with and pursuant to approval by the Department. Slag containing Radium-226 concentrations greater than 5 picocurie per gram will not be allowable for use as backfill or cover on any portion of the Site.

3.5 Fluids Management

All liquids to be removed from the Site, including excavation dewatering and truck wash water, will be verified to be visually free of any product, non-aqueous phase liquid, odor, or other visual indications of impact. In such instance it may be acceptable to discharge such water back to subgrade with prior NYSDEC approval. Generated water exhibiting signs of impact will not be recharged back to the land surface or subsurface of the Site unless treated to render it acceptable for discharge as approved by the NYSDEC.

Water generated during large-scale construction activities proposed for discharge to surface waters (i.e., a local pond, stream, or river) will require a NY State Pollutant Discharge Elimination System (SPDES) permit.

4.0 BACKFILL AND RESTORATION

4.1 Cover Materials

A minimum of 12 inches of NYSDEC-approved cover material (e.g., vegetated soil, stone, or Beneficial Use Determination [BUD]-approved steel slag with NYSDEC approval), where appropriate, will be placed over any unpaved areas of the Site as a component of the final remedy. The upper 6 inches of any soil cover must be of suitable quality to support vegetation. In general, this would be well-graded topsoil with a pH of 5.5 to 7.6, a minimum organic content of 2.5%, and a soluble salt content not greater than 500 ppm. Vegetation must be comprised of grasses or other plantings sufficiently dense to prevent wind and surface water erosion. All imported cover must also meet the criteria identified in Section 4.2.

After the completion of soil removal and any other invasive activities, the cover system will be restored in a manner that complies with the Site Management Plan (SMP) and Final Engineering Report (FER). The demarcation layer will be replaced to provide a visual reference to the top of the remaining in-place material. A change in the type of cover system that existed prior to the excavation (e.g., a soil cover is replaced by asphalt) constitutes a modification of the cover element of the remedy, and a figure showing the modified surface will be included in the subsequent Periodic Review Report (PRR) and in any updates to the SMP.

4.2 Backfill from Off-Site Sources

The criteria under which off-site material may be imported for use as backfill are presented below.

- **Off-Site Soil/Fill:** Off-site soil/fill may be used as backfill provided it originates from: 1) an NYSDEC-approved borrow site; or 2) a known source having no evidence of disposal or releases of hazardous substances, hazardous, toxic, or radioactive wastes, or petroleum. In both instances the imported soil must be tested and demonstrated to meet the criteria shown on Table B-1 in accordance with Appendix 5 of DER-10. In addition, no off-site materials meeting the definition of a solid waste as defined in 6 NYCRR, Part 360-1.2 (a) shall be used as backfill. The criteria presented in Table B-1 represent the lesser of the Commercial Soil Cleanup Objectives (SCOs) or levels protective of groundwater quality as published in 6NYCRR Part 375-6.7(d)(c) and 375-6.8.

- **Other Off-Site Material:** Certain material may be imported as backfill, without chemical testing, provided it contains less than 10% (by weight) material that would pass through a size 80 sieve: 1) Rock or stone, consisting of virgin material from a permitted mine or quarry; 2) steel slag under BUD #555-9-15 with NYSDEC approval; 3) Recycled concrete, brick, or asphalt from a NYSDEC-registered or permitted C&D debris processing facility (as specified in Section 360-16.1 of 6 NYCRR Part 360) that conforms to Section 304 of the New York State Department of Transportation Standard Specifications Construction and Materials Volume 1 (2002). As stated in Section 360-16.4(b)(2), the facility may only accept recognizable, uncontaminated, non-pulverized C&D debris or C&D debris from other authorized C&D processing facilities. According to Section 360-16.2(c), "uncontaminated" means C&D debris that is not mixed or commingled with other solid waste at the point of generation, processing, or disposal, and that is not contaminated with spills of a petroleum product, hazardous waste, or industrial waste.

As indicated above, off-site borrow soils shall be tested to assure conformance with the criteria identified on Table B-1. A tiered approach based on the volume of impacted soil/fill being excavated will be used to determine the frequency of characterization sampling in accordance with DER-10 or as pre-approved by the NYSDEC.

Grab samples will be collected for VOC analysis. For all other required analyses, a minimum of four grab samples will be collected to form a single composite sample. Approximately equal aliquots of the grab samples will be composited in the field using a stainless-steel trowel and bowl. The trowel and bowl shall be decontaminated with a non-phosphate detergent (e.g., Alconox®) and potable water wash solution followed by a distilled water rinse between sampling locations. The soil/fill samples will be analyzed for USEPA Target Compound List (TCL) VOCs, TCL SVOCs, pesticides, PCBs, as well as select metals[1] and cyanide in accordance with USEPA SW-846 Methodology by a NYSDOH ELAP-certified laboratory. Additionally, soil/fill samples will be tested for per- and polyfluoroalkyl substances (PFAS) in accordance with the Department's latest protocols[2]. Analytical results will be compared to Table B-1 criteria and provided to the NYSDEC as part of the approval process and reported in the PRR. Analytical results must be maintained

[1] Metals shall include those regulated under 6NYCRR Part 375-6.8, which presently include: Arsenic; Barium; Beryllium; Cadmium; Chromium (total and hexavalent forms); Copper; Lead; Manganese; Mercury; Nickel; Selenium; Silver; and Zinc.

[2] "Sampling, Analysis, and Assessment of Per- And Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs." January 2021.

on file for review in support of the periodic Institutional and Engineering Control (IC/EC) certification required as part of the final SMP.

Soils that meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this Site, will not be imported onto the Site without prior approval by NYSDEC. Solid waste will not be imported onto the Site.

All materials proposed for import onto the Site will be approved by the QEP and in compliance with the provisions of this EWP prior to receipt at the Site. A Request to Import/Reuse Fill or Soil form[3] will be prepared and submitted to the NYSDEC project manager allowing a minimum of 5 business days for review.

Trucks entering the Site with imported soils will be securely covered with tight fitting covers. Imported soils will be stockpiled separately from excavated materials and covered to prevent dust releases.

4.3 Backfill from On-Site Sources

On-site soil/fill may be used as subgrade backfill beneath existing approved cover provided it does not exhibit field evidence of impact. Soil/fill that is bioremediated on-site, or within another designated and approved area within the Tecumseh Business Parks, may be similarly used as subgrade backfill provided it meets the treatment criteria discussed in Section 3.4.2. Slag may be used as subgrade backfill provided it meets the field screening criteria discussed in Section 3.4.4. Backfill material will be compacted with the excavator/backhoe bucket in maximum 2-foot lifts to minimize settling.

[3] http://www.dec.ny.gov/regulations/67386.html

5.0 MONITORING AND INSPECTIONS

5.1 Stormwater Pollution Prevention

If construction activities disturb more than 1 acre of land, the Federal Water Pollution Control Act (as amended, 33 U.S.C. 1251 et. seq.) and the New York State Environmental Conservation Law (Article 17, Titles 7 and 8, and Article 70) would apply.

With some exceptions, operators of construction activities and property development that will result in the disturbance of 1 or more acres of land must obtain coverage under SPDES General Permit for Stormwater Discharges from Construction Activity (GP-0-20-001, expires 01/28/25) prior to the commencement of soil disturbance. (In the case of a remediation site, such as the Controlled Property, soil disturbances associated with remedial activities are exempt from State-issued permits; however, functional equivalent approvals, mitigation and compliance measures are required). Also requiring a permit are construction activities disturbing less than 1 acre if they are part of a larger common plan of development or sale with a planned disturbance of equal to or greater than 1 acre, or activities that are designated by the NYSDEC. The NYSDEC can require a permit for construction activities disturbing less than 1 acre based on the potential for contribution to a violation of a water quality standard or for significant contribution of pollutants to waters of the United States.

To obtain coverage under the General Permit, the operator of a construction activity must file a completed Notice of Intent (NOI) with the NYSDEC. Submitting a NOI is an affirmation that a Stormwater Pollution Prevention Plan (SWPPP) has been prepared for the site and will be implemented prior to the commencement of construction activities. Coverage under the General Permit will begin either 5 or 60 business days after receipt of a completed NOI by the NYSDEC. Appendix B-1 includes the NOI application form and SPDES General Permit GP-0-20-001.

For smaller disturbances not subject to SPDES General Permit requirements, erosion controls must be installed as necessary to mitigate impacted stormwater and sediment runoff. These controls (which may include silt fencing around stockpiles, berms, and hay bale checks) will be required in areas of disturbance proximate to surface water bodies and drainage structures and will also be required if disturbances occur in areas where the surrounding slag/fill is not sufficiently permeable to allow re-infiltration. Erosion and

sediment controls shall be installed in accordance with the standards and specifications presented in Appendix B-2.

The controls will be installed and inspected once a week and after every storm event. All necessary repairs shall be made immediately. Accumulated sediments will be removed as required to keep the controls functional. All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials. Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Results of inspections will be recorded in a logbook, maintained by the Site Owner or Owner's representative, and made available for inspection by NYSDEC.

5.2 Contingency Plan

If underground tanks or other previously unidentified contaminant sources are found during intrusive activities, excavation activities will be suspended until sufficient equipment is mobilized to address the condition.

Sampling will be performed on product, sediment, and surrounding soils as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed for a comprehensive list of analytes (RCRA metals, TCL VOCs, SVOCs, and PCBs, and cyanide), unless the Site history and previous sampling results provide a sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the NYSDEC for approval.

Identification of unknown or unexpected contaminated media identified by screening during intrusive activities will be promptly communicated by phone to NYSDEC's Project Manager. Reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline.

5.3 Community Air Monitoring Plan

As detailed in Appendix B-3, the following criteria shall also be adhered to during intrusive activities for the protection of the nearby community.

5.3.1 Organic Vapor Community Air Monitoring:

Community air monitoring will be performed at the downwind perimeter of the exclusion zone on a continuous basis during intrusive activities performed outdoors that may be reasonably expected to potentially release organic vapors, or when sustained readings are detected in the work zone (i.e., proximate to the source of the intrusive activity). Otherwise, the monitoring will be performed on an hourly basis. A photoionization detector (PID), or other equipment suitable to the types of contaminants known or suspected to be present, capable of calculating 15-minute running average concentrations will be used. All air monitoring equipment will be calibrated at least daily, and an upwind concentration will be taken at least daily to establish background conditions. The 15-minute average concentrations will be compared to the levels specified below.

- If the 15-minute ambient air concentration of organic vapors at the downwind perimeter of the exclusion zone exceeds 5 ppm above background, work activities will be halted and monitoring continued. If the organic vapor decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.
- If the ambient air concentration of organic vapors at the downwind perimeter of the exclusion zone persists at levels above 5 ppm over background but less than 25 ppm, activities must be halted, the source of vapors identified, corrective actions to abate the emissions taken, and monitoring continued. After these steps, work activities can resume provided that: the organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest off-site potential receptor or residential or commercial structure, whichever is less (but in no case less than 20 feet), is below 5 ppm over background for the 15-minute average.
- If the organic vapor level is above 25 ppm at the perimeter of the exclusion zone, work activities must be shut down and the following activities will be performed:
  - All Emergency Response Contacts as listed in the HASP (Ref. 2) and the Emergency Response Plan (an appendix to the HASP) will be advised.
  - The local police authorities will immediately be contacted by the Site Health and Safety Officer and advised of the situation.
  - Air monitoring will be continued at ½ the distance from the exclusion zone to the nearest receptor.

All readings will be recorded and will be available for NYSDEC and NYSDOH personnel to review.

5.3.2 Explosive Vapor Community Air Monitoring

Explosive vapor community air monitoring will be performed at the downwind perimeter of the site on a continuous basis whenever sustained atmospheric concentrations of greater than 10% of the LEL are recorded in the exclusion zone. If sustained atmospheric concentrations of greater than 10% LEL are recorded at the downwind site perimeter, the local Fire Department will be contacted.

5.3.3 Airborne Particulate Community Air Monitoring

Respirable (PM-10) particulate monitoring will be performed on a continuous basis at the upwind and downwind perimeter of the exclusion zone. The monitoring will be performed using real-time monitoring equipment capable of measuring PM-10 and integrating over a period of 15-minutes for comparison to the airborne particulate action levels. The equipment will be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration will be visually assessed during all work activities. All readings will be recorded and will be available for NYSDEC and NYSDOH review. Readings will be interpreted as follows:

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (ug/m^3) greater than the background (upwind perimeter) reading for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression provided that the downwind PM-10 particulate levels do not exceed 150 ug/m^3 above the upwind level and that visible dust is not migrating from the work area.

If after implementation of dust suppression techniques, downwind PM-10 levels are greater than 150 ug/m^3 above the upwind level, work activities must be stopped, and dust suppression controls re-evaluated. Work can resume provided that supplemental dust suppression measures and/or other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 ug/m^3 of the upwind level and in preventing visible dust migration.

Air sampling stations will be located based on generally prevailing wind conditions. These locations will be adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and at least two downwind monitoring stations.

Exceedances of action levels listed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers.

5.3.4 Special Requirements

Ground intrusive activities within 20 feet of occupied structures or potential receptors (e.g., public roadways, sidewalks, etc.) should consider the following:

- Continuous monitoring locations should reflect the nearest potentially exposed individuals and vapor pathways (openings, conduits, vents, etc.).
- Take background readings in the occupied spaces prior to commencement of planned work.
- Consider use of engineering controls such as vapor/dust barriers, exhaust fans, or other controls to create negative air pressure within the work area.
- The planned work should be implemented during hours when building occupancy is at a minimum.

5.4 Odor Control Plan

The purpose of this odor control plan is to control emissions of nuisance odors off-site. Specific odor control methods to be used on a routine basis are described below. If nuisance odors are identified at the Site boundary, or if odor complaints are received, work will be halted, and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the associated Site Owner, and any measures that are implemented will be documented.

All necessary means will be employed to prevent on- and off-site nuisances. At a minimum, these measures will include: (a) limiting the area of open excavations and size of soil stockpiles; (b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-site disposal; (e) use of chemical odorants in spray or misting systems; and (f) use of staff to monitor odors in surrounding neighborhoods.

If nuisance odors develop during intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to on-site conditions or

proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering systems.

5.5 Dust Control Plan

Particulate monitoring will be performed along the downwind perimeter of the Site during subgrade excavation, grading, and handling activities in accordance with the requirements for community air monitoring at remediation sites as established by the NYSDOH and NYSDEC. Accordingly, it follows procedures and practices outlined under DER-10 Appendix 1A (NYSDOH's Generic Community Air Monitoring Plan) and Appendix 1B (Fugitive Dust and Particulate Monitoring) both included as Appendix B-3. Dust suppression techniques will be employed as necessary to mitigate fugitive dust from non-vegetated or disturbed soil/fill during post-remediation construction and redevelopment.

A dust suppression plan that addresses dust management during intrusive on-site work will include, at a minimum, the items listed below:

- Dust suppression will be achieved by using a dedicated on-site water truck for road wetting. The truck will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles.
- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.
- Gravel will be used on roadways to provide a clean and dust-free road surface.
- On-site roads will be limited in total area to minimize the area required for water truck sprinkling.
- Hauling materials in properly tarped containers or vehicles.
- Restricting vehicle speeds on-site.
- Covering or proof-rolling excavated areas and materials after excavation activity ceases.
- Reducing the excavation size and/or number of excavations.

All reasonable attempts will be made to keep visible and/or fugitive dust to a minimum.

5.6 Other Nuisances

A plan will be developed and used by the contractor for all remedial work to ensure compliance with local noise control ordinances. At a minimum, this shall include limiting construction to typical daylight work hours.

6.0 REFERENCES

1. New York State Department of Environmental Conservation. *DEC Program Policy DER-10/Technical Guidance for Site Investigation and Remediation.* May 3, 2010.
2. TurnKey Environmental Restoration, LLC in affiliation with Benchmark Environmental Engineering & Science, PLLC, *Site-Wide Health and Safety Plan (HASP). Tecumseh Redevelopment Site, Lackawanna, NY*. April 2010.

TABLES

TURNKEY ENVIRONMENTAL RESTORATION, LLC

TABLE B-1

CRITERIA FOR IMPORTED SOILS

Site Management Plan
Tecumseh Phase II Business Park
Lackawanna, New York

Parameter	Cover Soil Criteria[1]
Volatile Organic Compounds (mg/kg)	
1,1,1-Trichloroethane	0.68
1,1-Dichloroethane	0.27
1,1-Dichloroethene	0.33
1,2-Dichlorobenzene	1.1
1,2-Dichloroethane	0.02
1,2-Dichloroethene(cis)	0.25
1,2-Dichloroethene(trans)	0.19
1,3-Dichlorobenzene	2.4
1,4-Dichlorobenzene	1.8
1,4-Dioxane	0.1
Acetone	0.05
Benzene	0.06
Butylbenzene	12
Carbon tetrachloride	0.76
Chlorobenzene	1.1
Chloroform	0.37
Ethylbenzene	1
Hexachlorobenzene	3.2
Methyl ethyl ketone	0.12
Methyl tert-butyl ether	0.93
Methylene chloride	0.05
Propylbenzene-n	3.9
Sec-Butylbenzene	11
Tert-Butylbenzene	5.9
Tetrachloroethene	1.3
Toluene	0.7
Trichloroethene	0.47

TABLE B-1

CRITERIA FOR IMPORTED SOILS

Site Management Plan
Tecumseh Phase II Business Park
Lackawanna, New York

Parameter	Cover Soil Criteria[1]
Volatile Organic Compounds (mg/kg)	
Trimethylbenzene-1,2,4	3.6
Trimethylbenzene-1,3,5	8.4
Vinyl chloride	0.02
Xylene (mixed)	1.6
Semi-Volatile Organic Compounds (mg/kg)	
Acenaphthene	98
Acenaphthylene	107
Anthracene	500
Benzo(a)anthracene	1
Benzo(a)pyrene	1
Benzo(b)fluoranthene	1.7
Benzo(g,h,i)perylene	500
Benzo(k)fluoranthene	1.7
Chrysene	1
Dibenz(a,h)anthracene	0.56
Fluoranthene	500
Fluorene	386
Indeno(1,2,3-cd)pyrene	5.6
m-Cresol(s)	0.33
Naphthalene	12
o-Cresol(s)	0.33
p-Cresol(s)	0.33
Pentachlorophenol	0.8
Phenanthrene	500
Phenol	0.33
Pyrene	500

TURNKEY ENVIRONMENTAL RESTORATION, LLC

TABLE B-1

CRITERIA FOR IMPORTED SOILS

Site Management Plan
Tecumseh Phase II Business Park
Lackawanna, New York

Parameter	Cover Soil Criteria[1]
Metals (mg/kg)	
Arsenic	16
Barium	400
Beryllium	47
Cadmium	7.5
Chromium, Hexavalent[2]	19
Chromium, Trivalent[2]	1500
Copper	270
Cyanide	27
Lead	450
Manganese	2000
Mercury (total)	0.73
Nickel	130
Selenium	4
Silver	8.3
Zinc	2480
PCBs/Pesticides (mg/kg)	
2,4,5-TP Acid (Silvex)	3.8
4,4'-DDE	17
4,4'-DDT	47
4,4'-DDD	14
Aldrin	0.19
Alpha-BHC	0.02
Beta-BHC	0.09
Chlordane (alpha)	2.9
Delta-BHC	0.25
Dibenzofuran	210
Dieldrin	0.1
Endosulfan I	102

TABLE B-1

CRITERIA FOR IMPORTED SOILS

Site Management Plan
Tecumseh Phase II Business Park
Lackawanna, New York

Parameter	Cover Soil Criteria[1]
PCBs/Pesticides (mg/kg)	
Endosulfan II	102
Endosulfan sulfate	200
Endrin	0.06
Heptachlor	0.38
Lindane	0.1
Polychlorinated biphenyls	1
Per- and Polyfluoroalkyl Substances (ug/kg)	
Perfluorooctanoic acid (PFOA)	1.1
Perfluorooctanesulfonic acid (PFOS)	3.7

Notes:

[1] Soil criteria are lesser of concentrations protective of groundwater or commercial health-based soil cleanup objectives per 6 NYCRR 375-6.8(b).

[2] The SCO for Hexavalent or Trivalent Chromium is considered to be met if the analysis for the total species of this contaminant is below the specific SCO for Hexavalent Chromium.

FIGURES

F:\CAD\TurnKey\Tecumseh Redevelopment\Brownfield Cleanup Program (BCP)\Phase II Parcel\Site Management Plan\Figure 1; Site Location and Vicinity Map.dwg

FIGURE 1

TurnKey Environmental Restoration, LLC

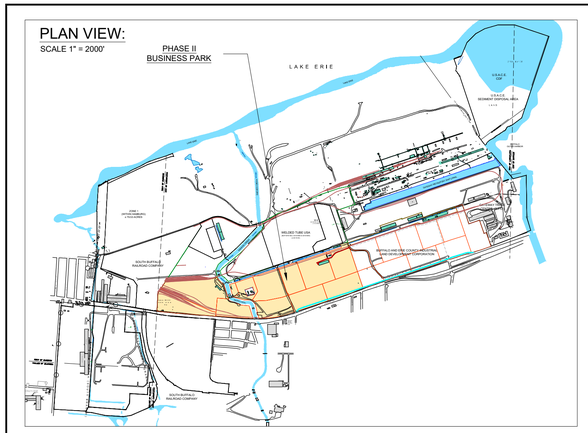
2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0635

SITE LOCATION AND VICINITY MAP

SITE MANAGEMENT PLAN

PHASE II BUSINESS PARK
LACKAWANNA, NEW YORK

PROJECT NO.:	0071-012-322
DATE:	JULY 2012
DRAFTED BY:	HAA



SMOKES CREEK

WEST CONNECTOR

SOUTH RETURN WATER TRENCH

EAST HARBOR LEAD

DONA STREET EXTENSION

OUTFALL 226

SMOKES CREEK

NIAGARA WIND PARCEL
EXCLUDED FROM BCP
(±0.38 ACRES)

NATIONAL GRID PARCEL
EXCLUDED FROM BCP
(±0.97 ACRES)

II-1
BCP SITE NO. C915198
(± 14.35 ACRES)

II-2
BCP SITE NO. C915198B
(± 9.43 ACRES)

II-3
BCP SITE NO. C915198C
(± 23.40 ACRES)

II-4
S. LINDE
BCP SITE NO. C915198D
(± 1.40 ACRES)

II-5
BCP SITE NO. C915198E
(± 5.78 ACRES)

II-6
BCP SITE NO. C915198F
(± 11.50 ACRES)

II-7
BCP SITE NO C915198G
(± 14.30 ACRES)

II-8
BCP SITE NO. C915198H
(± 11.41 ACRES)

II-9
BCP SITE NO. C915198I
(± 9.91 ACRES)

II-10
BCP SITE NO. C915198J
(± 15.78 ACRES)

II-11
BCP SITE NO. C915198K
(± 11.98 ACRES)

II-12
BCP SITE NO. C915198L
(± 12.02 ACRES)

HAMBURG TPKE. - SR 5

HOLBROOK STREET

ODELL STREET

LINCOLN AVE

ADAMS ST.

MADISON AVE

2nd STREET

GENERAL
OFFICE
BUILDING
EAST

DONA STREET

LEGEND:

- EXISTING BUILDING / STRUCTURE
- PHASE II BUSINESS PARK BOUNDARY (+/- 141.26 ACRES)
- RAILROAD TRACK

Parcel Identification	BCP Site No.	Area (Acres)
II-1	C915198	14.35
II-2	C9151988	9.43
II-3	C915198C	23.40
II-4	C915198D	1.40
II-5	C915198E	5.78
II-6	C915198F	11.50
II-7	C915198G	14.30
II-8	C915198H	11.41
II-9	C915198I	9.91
II-10	C915198J	15.78
II-11	C915198K	11.98
II-12	C915198L	12.02
Total Area Phase II Business Park		**141.26**

N

200' 0' 200' 400'

SCALE: 1 INCH = 200 FEET
SCALE IN FEET
(approximate)

TURNKEY ENVIRONMENTAL RESTORATION, LLC
2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0635

JOB NO.: 0071-012-322

REVISIONS

NO.	BY	DATE	REMARKS

DRAWN BY: RFL
DATE: JUNE 2021
CHECKED BY: LR
APPROVED BY: THF

DISCLAIMER:
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SITE DELINEATION MAP

SITE MANAGEMENT PLAN
PHASE II BUSINESS PARK
LACKAWANNA, NEW YORK

TECUMSEH REDEVELOPMENT INC.

SEAL

FIGURE 2

APPENDIX B-1

SPDES GENERAL PERMIT GP-0-20-001
NOTICE OF INTENT

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SPDES GENERAL PERMIT
FOR STORMWATER DISCHARGES

From

CONSTRUCTION ACTIVITY

Permit No. GP- 0-20-001

Issued Pursuant to Article 17, Titles 7, 8 and Article 70

of the Environmental Conservation Law

Effective Date: January 29, 2020

Expiration Date: January 28, 2025

John J. Ferguson

Chief Permit Administrator

1-23-20

Authorized Signature

Date

Address: NYS DEC
Division of Environmental Permits
625 Broadway, 4th Floor
Albany, N.Y. 12233-1750

PREFACE

Pursuant to Section 402 of the Clean Water Act ("CWA"), stormwater *discharges* from certain *construction activities* are unlawful unless they are authorized by a *National Pollutant Discharge Elimination System ("NPDES")* permit or by a state permit program. New York administers the approved State Pollutant Discharge Elimination System (SPDES) program with permits issued in accordance with the New York State Environmental Conservation Law (ECL) Article 17, Titles 7, 8 and Article 70.

An *owner or operator* of a *construction activity* that is eligible for coverage under this permit must obtain coverage prior to the *commencement of construction activity*. Activities that fit the definition of "*construction activity*", as defined under 40 CFR 122.26(b)(14)(x), (15)(i), and (15)(ii), constitute construction of a *point source* and therefore, pursuant to ECL section 17-0505 and 17-0701, the *owner or operator* must have coverage under a SPDES permit prior to *commencing construction activity*. The *owner or operator* cannot wait until there is an actual *discharge* from the *construction site* to obtain permit coverage.

***Note: The italicized words/phrases within this permit are defined in Appendix A.**

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES

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Part 1. PERMIT COVERAGE AND LIMITATIONS

A. Permit Application

This permit authorizes stormwater *discharges* to *surface waters of the State* from the following *construction activities* identified within 40 CFR Parts 122.26(b)(14)(x), 122.26(b)(15)(i) and 122.26(b)(15)(ii), provided all of the eligibility provisions of this permit are met:

1. *Construction activities* involving soil disturbances of one (1) or more acres; including disturbances of less than one acre that are part of a *larger common plan of development or sale* that will ultimately disturb one or more acres of land; excluding *routine maintenance activity* that is performed to maintain the original line and grade, hydraulic capacity or original purpose of a facility;

2. *Construction activities* involving soil disturbances of less than one (1) acre where the Department has determined that a *SPDES* permit is required for stormwater *discharges* based on the potential for contribution to a violation of a *water quality standard* or for significant contribution of *pollutants* to *surface waters of the State.*

3. *Construction activities* located in the watershed(s) identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

B. Effluent Limitations Applicable to Discharges from Construction Activities

*Discharge*s authorized by this permit must achieve, at a minimum, the effluent limitations in Part I.B.1. (a) – (f) of this permit. These limitations represent the degree of effluent reduction attainable by the application of best practicable technology currently available.

1. Erosion and Sediment Control Requirements - The *owner or operator* must select, design, install, implement and maintain control measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. The selection, design, installation, implementation, and maintenance of these control measures must meet the non-numeric effluent limitations in Part I.B.1.(a) – (f) of this permit and be in accordance with the New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, using sound engineering judgment. Where control measures are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must include in the *Stormwater Pollution Prevention Plan* (“SWPPP”) the reason(s) for the

deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

a. **Erosion and Sediment Controls.** Design, install and maintain effective erosion and sediment controls to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such controls must be designed, installed and maintained to:

   (i) *Minimize* soil erosion through application of runoff control and soil stabilization control measure to *minimize pollutant discharge*s;

   (ii) Control stormwater *discharge*s, including both peak flowrates and total stormwater volume, to *minimize* channel and *streambank* erosion and scour in the immediate vicinity of the *discharge* points;

   (iii) *Minimize* the amount of soil exposed during *construction activity*;

   (iv) *Minimize* the disturbance of *steep slopes*;

   (v) *Minimize* sediment *discharge*s from the site;

   (vi) Provide and maintain *natural buffer*s around surface waters, direct stormwater to vegetated areas and maximize stormwater infiltration to reduce *pollutant discharge*s, unless *infeasible*;

   (vii) *Minimize* soil compaction. Minimizing soil compaction is not required where the intended function of a specific area of the site dictates that it be compacted;

   (viii) Unless *infeasible*, preserve a sufficient amount of topsoil to complete soil restoration and establish a uniform, dense vegetative cover; and

   (ix) *Minimize* dust. On areas of exposed soil, *minimize* dust through the appropriate application of water or other dust suppression techniques to control the generation of pollutants that could be discharged from the site.

b. **Soil Stabilization**. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within fourteen (14) days from the date the current soil disturbance activity ceased. For construction sites that *directly discharge* to one of the 303(d) segments

listed in Appendix E or is located in one of the watersheds listed in Appendix C, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. See Appendix A for definition of *Temporarily Ceased*.

c. **Dewatering**. *Discharge*s from *dewatering* activities, including *discharge*s from *dewatering* of trenches and excavations, must be managed by appropriate control measures.

d. **Pollution Prevention Measures**. Design, install, implement, and maintain effective pollution prevention measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such measures must be designed, installed, implemented and maintained to:

(i) *Minimize* the *discharge* of *pollutants* from equipment and vehicle washing, wheel wash water, and other wash waters. This applies to washing operations that use clean water only. Soaps, detergents and solvents cannot be used;

(ii) *Minimize* the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, hazardous and toxic waste, and other materials present on the site to precipitation and to stormwater. Minimization of exposure is not required in cases where the exposure to precipitation and to stormwater will not result in a *discharge* of *pollutants*, or where exposure of a specific material or product poses little risk of stormwater contamination (such as final products and materials intended for outdoor use) ; and

(iii) Prevent the *discharge* of *pollutants* from spills and leaks and implement chemical spill and leak prevention and response procedures.

e. **Prohibited *Discharges*.** The following *discharge*s are prohibited:

(i) Wastewater from washout of concrete;

(ii) Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;

(iii) Fuels, oils, or other *pollutants* used in vehicle and equipment operation and maintenance;

(iv) Soaps or solvents used in vehicle and equipment washing; and

(v) Toxic or hazardous substances from a spill or other release.

f. Surface Outlets. When discharging from basins and impoundments, the outlets shall be designed, constructed and maintained in such a manner that sediment does not leave the basin or impoundment and that erosion at or below the outlet does not occur.

C. Post-construction Stormwater Management Practice Requirements

1. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must select, design, install, and maintain the practices to meet the *performance criteria* in the New York State Stormwater Management Design Manual ("Design Manual"), dated January 2015, using sound engineering judgment. Where post-construction stormwater management practices ("SMPs") are not designed in conformance with the *performance criteria* in the Design Manual, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must design the practices to meet the applicable *sizing criteria* in Part I.C.2.a., b., c. or d. of this permit.

a. Sizing Criteria for New Development

(i) Runoff Reduction Volume ("RRv"): Reduce the total Water Quality Volume ("WQv") by application of RR techniques and standard SMPs with RRv capacity. The total WQv shall be calculated in accordance with the criteria in Section 4.2 of the Design Manual.

(ii) Minimum RRv and Treatment of Remaining Total WQv: Construction activities that cannot meet the criteria in Part I.C.2.a.(i) of this permit due to site limitations shall direct runoff from all newly constructed impervious areas to a RR technique or standard SMP with RRv capacity unless infeasible. The specific site limitations that prevent the reduction of 100% of the WQv shall be documented in the SWPPP.

For each impervious area that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered infeasible.

In no case shall the runoff reduction achieved from the newly constructed impervious areas be less than the Minimum RRv as calculated using the criteria in Section 4.3 of the Design Manual. The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

(iii) Channel Protection Volume ("Cpv"): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
(1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
(2) The site discharges directly to tidal waters, or fifth order or larger streams.

(iv) *Overbank* Flood Control Criteria ("Qp"): Requires storage to attenuate the post-development 10-year, 24-hour peak discharge rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
(1) the site discharges directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

(v) Extreme Flood Control Criteria ("Qf"): Requires storage to attenuate the post-development 100-year, 24-hour peak discharge rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
(1) the site discharges directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

b. *Sizing Criteria* for *New Development* in Enhanced Phosphorus Removal Watershed

(i) Runoff Reduction Volume (RRv): Reduce the total Water Quality Volume (WQv) by application of RR techniques and standard SMPs with RRv capacity. The total WQv is the runoff volume from the 1-year, 24 hour design storm over the post-developed watershed and shall be

calculated in accordance with the criteria in Section 10.3 of the Design Manual.

(ii) Minimum RRv and Treatment of Remaining Total WQv: *Construction activities* that cannot meet the criteria in Part I.C.2.b.(i) of this permit due to *site limitations* shall direct runoff from all newly constructed *impervious areas* to a RR technique or standard SMP with RRv capacity unless *infeasible*. The specific *site limitations* that prevent the reduction of 100% of the WQv shall be documented in the SWPPP. For each *impervious area* that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered *infeasible.*

In no case shall the runoff reduction achieved from the newly constructed *impervious areas* be less than the Minimum RRv as calculated using the criteria in Section 10.3 of the Design Manual. The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

(iii) Channel Protection Volume (Cpv): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
(1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
(2) The site *discharge*s directly to tidal waters, or fifth order or larger streams.

(iv) *Overbank* Flood Control Criteria (Qp): Requires storage to attenuate the post-development 10-year, 24-hour peak *discharge* rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
(1) the site *discharge*s directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

(v) Extreme Flood Control Criteria (Qf): Requires storage to attenuate the post-development 100-year, 24-hour peak *discharge* rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
(1) the site *discharge*s directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

c. Sizing Criteria for Redevelopment Activity

(i) Water Quality Volume (WQv): The WQv treatment objective for *redevelopment activity* shall be addressed by one of the following options. *Redevelopment activities* located in an Enhanced Phosphorus Removal Watershed (see Part III.B.3. and Appendix C of this permit) shall calculate the WQv in accordance with Section 10.3 of the Design Manual. All other *redevelopment activities* shall calculate the WQv in accordance with Section 4.2 of the Design Manual.

(1) Reduce the existing *impervious cover* by a minimum of 25% of the total disturbed, *impervious area*. The Soil Restoration criteria in Section 5.1.6 of the Design Manual must be applied to all newly created pervious areas, or

(2) Capture and treat a minimum of 25% of the WQv from the disturbed, *impervious area* by the application of standard SMPs; or reduce 25% of the WQv from the disturbed, *impervious area* by the application of RR techniques or standard SMPs with RRv capacity., or

(3) Capture and treat a minimum of 75% of the WQv from the disturbed, *impervious area* as well as any additional runoff from tributary areas by application of the alternative practices discussed in Sections 9.3 and 9.4 of the Design Manual., or

(4) Application of a combination of 1, 2 and 3 above that provide a weighted average of at least two of the above methods. Application of this method shall be in accordance with the criteria in Section 9.2.1(B) (IV) of the Design Manual.

If there is an existing post-construction stormwater management practice located on the site that captures and treats runoff from the *impervious area* that is being disturbed, the WQv treatment option selected must, at a minimum, provide treatment equal to the treatment that was being provided by the existing practice(s) if that treatment is greater than the treatment required by options 1 – 4 above.

(ii) Channel Protection Volume (Cpv): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(iii) *Overbank* Flood Control Criteria (Qp): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(iv) Extreme Flood Control Criteria (Qf): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site

d. Sizing Criteria for Combination of Redevelopment Activity and New Development

Construction projects that include both New Development and Redevelopment Activity shall provide post-construction stormwater management controls that meet the sizing criteria calculated as an aggregate of the Sizing Criteria in Part I.C.2.a. or b. of this permit for the New Development portion of the project and Part I.C.2.c of this permit for Redevelopment Activity portion of the project.

D. Maintaining Water Quality

The Department expects that compliance with the conditions of this permit will control *discharge*s necessary to meet applicable *water quality standards*. It shall be a violation of the *ECL* for any discharge to either cause or contribute to a violation of *water quality standards* as contained in Parts 700 through 705 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York, such as:

1. There shall be no increase in turbidity that will cause a substantial visible contrast to natural conditions;

2. There shall be no increase in suspended, colloidal or settleable solids that will cause deposition or impair the waters for their best usages; and

3. There shall be no residue from oil and floating substances, nor visible oil film, nor globules of grease.

If there is evidence indicating that the stormwater *discharge*s authorized by this permit are causing, have the reasonable potential to cause, or are contributing to a violation of the *water quality standards*; the *owner or operator* must take appropriate corrective action in accordance with Part IV.C.5. of this general permit and document in accordance with Part IV.C.4. of this general permit. To address the *water quality standard* violation the *owner or operator* may need to provide additional information, include and implement appropriate controls in the SWPPP to correct the problem, or obtain an individual SPDES permit.

If there is evidence indicating that despite compliance with the terms and conditions of this general permit it is demonstrated that the stormwater *discharge*s authorized by this permit are causing or contributing to a violation of *water quality standards*, or if the Department determines that a modification of the permit is necessary to prevent a violation of *water quality standards*, the authorized *discharge*s will no longer be eligible for coverage under this permit. The Department may require the *owner or operator* to obtain an individual SPDES permit to continue discharging.

E. Eligibility Under This General Permit

1. This permit may authorize all *discharges* of stormwater from *construction activity* to *surface waters of the State* and *groundwaters* except for ineligible *discharges* identified under subparagraph F. of this Part.

2. Except for non-stormwater *discharges* explicitly listed in the next paragraph, this permit only authorizes stormwater *discharge*s; including stormwater runoff, snowmelt runoff, and surface runoff and drainage, from *construction activities*.

3. Notwithstanding paragraphs E.1 and E.2 above, the following non-stormwater discharges are authorized by this permit: those listed in 6 NYCRR 750-1.2(a)(29)(vi), with the following exception: "Discharges from firefighting activities are authorized only when the firefighting activities are emergencies/unplanned"; waters to which other components have not been added that are used to control dust in accordance with the SWPPP; and uncontaminated *discharge*s from *construction site* de-watering operations. All non-stormwater discharges must be identified in the SWPPP. Under all circumstances, the *owner or operator* must still comply with *water quality standards* in Part I.D of this permit.

4. The *owner or operator* must maintain permit eligibility to *discharge* under this permit. Any *discharges* that are not compliant with the eligibility conditions of this permit are not authorized by the permit and the *owner or operator* must either apply for a separate permit to cover those ineligible *discharges* or take steps necessary to make the *discharge* eligible for coverage.

F. Activities Which Are Ineligible for Coverage Under This General Permit

All of the following are **not** authorized by this permit:

1. *Discharge*s after *construction activities* have been completed and the site has undergone *final stabilization*;

2. *Discharge*s that are mixed with sources of non-stormwater other than those expressly authorized under subsection E.3. of this Part and identified in the SWPPP required by this permit;

3. *Discharges* that are required to obtain an individual SPDES permit or another SPDES general permit pursuant to Part VII.K. of this permit;

4. *Construction activities* or *discharges* from *construction activities* that may adversely affect an *endangered or threatened species* unless the *owner or*

operator has obtained a permit issued pursuant to 6 NYCRR Part 182 for the project or the Department has issued a letter of non-jurisdiction for the project. All documentation necessary to demonstrate eligibility shall be maintained on site in accordance with Part II.D.2 of this permit;

5. *Discharges* which either cause or contribute to a violation of *water quality standards* adopted pursuant to the *ECL* and its accompanying regulations;

6. *Construction activities* for residential, commercial and institutional projects:

   a. Where the *discharge*s from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and

   b. Which are undertaken on land with no existing *impervious cover*; and

   c. Which disturb one (1) or more acres of land designated on the current United States Department of Agriculture ("USDA") Soil Survey as Soil Slope Phase "D", (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase "E" or "F" (regardless of the map unit name), or a combination of the three designations.

7. *Construction activities* for linear transportation projects and linear utility projects:

   a. Where the *discharge*s from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and

   b. Which are undertaken on land with no existing *impervious cover*; and

   c. Which disturb two (2) or more acres of land designated on the current USDA Soil Survey as Soil Slope Phase "D" (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase "E" or "F" (regardless of the map unit name), or a combination of the three designations.

8. *Construction activities* that have the potential to affect an *historic property*, unless there is documentation that such impacts have been resolved. The following documentation necessary to demonstrate eligibility with this requirement shall be maintained on site in accordance with Part II.D.2 of this permit and made available to the Department in accordance with Part VII.F of this permit:

   a. Documentation that the *construction activity* is not within an archeologically sensitive area indicated on the sensitivity map, and that the *construction activity* is not located on or immediately adjacent to a property listed or determined to be eligible for listing on the National or State Registers of Historic Places, and that there is no new permanent building on the *construction site* within the following distances from a building, structure, or object that is more than 50 years old, or if there is such a new permanent building on the *construction site* within those parameters that NYS Office of Parks, Recreation and Historic Preservation (OPRHP), a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determined that the building, structure, or object more than 50 years old is not historically/archeologically significant.

      - 1-5 acres of disturbance - 20 feet
      - 5-20 acres of disturbance - 50 feet
      - 20+ acres of disturbance - 100 feet, or

   b. DEC consultation form sent to OPRHP, and copied to the NYS DEC Agency Historic Preservation Officer (APO), and
      (i) the State Environmental Quality Review (SEQR) Environmental Assessment Form (EAF) with a negative declaration or the Findings Statement, with documentation of OPRHP's agreement with the resolution; or
      (ii) documentation from OPRHP that the *construction activity* will result in No Impact; or
      (iii) documentation from OPRHP providing a determination of No Adverse Impact; or
      (iv) a Letter of Resolution signed by the owner/operator, OPRHP and the DEC APO which allows for this *construction activity* to be eligible for coverage under the general permit in terms of the State Historic Preservation Act (SHPA); or

   c. Documentation of satisfactory compliance with Section 106 of the National Historic Preservation Act for a coterminous project area:

(i) No Affect
(ii) No Adverse Affect
(iii) Executed Memorandum of Agreement, or

d. Documentation that:

(i) SHPA Section 14.09 has been completed by NYS DEC or another state agency.

9. *Discharge*s from *construction activities* that are subject to an existing SPDES individual or general permit where a SPDES permit for *construction activity* has been terminated or denied; or where the *owner or operator* has failed to renew an expired individual permit.

Part II. PERMIT COVERAGE

A. How to Obtain Coverage

1. An *owner or operator* of a *construction activity* that is not subject to the requirements of a regulated, traditional land use control MS4 must first prepare a SWPPP in accordance with all applicable requirements of this permit and then submit a completed Notice of Intent (NOI) to the Department to be authorized to discharge under this permit.

2. An *owner or operator* of a *construction activity* that is subject to the requirements of a *regulated, traditional land use control MS4* must first prepare a SWPPP in accordance with all applicable requirements of this permit and then have the SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department. The *owner or operator* shall have the “MS4 SWPPP Acceptance” form signed in accordance with Part VII.H., and then submit that form along with a completed NOI to the Department.

3. The requirement for an *owner or operator* to have its SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department does not apply to an *owner or operator* that is obtaining permit coverage in accordance with the requirements in Part II.F. (Change of *Owner or Operator*) or where the *owner or operator* of the *construction activity* is the *regulated, traditional land use control MS4* . This exemption does not apply to *construction activities* subject to the New York City Administrative Code.

B. Notice of Intent (NOI) Submittal

1. Prior to December 21, 2020, an owner or operator shall use either the electronic (eNOI) or paper version of the NOI that the Department prepared. Both versions of the NOI are located on the Department's website (http://www.dec.ny.gov/). The paper version of the NOI shall be signed in accordance with Part VII.H. of this permit and submitted to the following address:

   NOTICE OF INTENT
   NYS DEC, Bureau of Water Permits
   625 Broadway, 4th Floor
   Albany, New York 12233-3505

2. Beginning December 21, 2020 and in accordance with EPA's 2015 NPDES Electronic Reporting Rule (40 CFR Part 127), the *owner or operator* must submit the NOI electronically using the *Department's* online NOI.

3. The *owner or operator* shall have the SWPPP preparer sign the "SWPPP Preparer Certification" statement on the NOI prior to submitting the form to the Department.

4. As of the date the NOI is submitted to the Department, the *owner or operator* shall make the NOI and SWPPP available for review and copying in accordance with the requirements in Part VII.F. of this permit.

C. Permit Authorization

1. An *owner or operator* shall not *commence construction activity* until their authorization to *discharge* under this permit goes into effect.

2. Authorization to *discharge* under this permit will be effective when the *owner or operator* has satisfied all of the following criteria:

   a. project review pursuant to the State Environmental Quality Review Act ("SEQRA") have been satisfied, when SEQRA is applicable. See the Department's website (http://www.dec.ny.gov/) for more information,

   b. where required, all necessary Department permits subject to the *Uniform Procedures Act ("UPA")* (see 6 NYCRR Part 621), or the equivalent from another New York State agency, have been obtained, unless otherwise notified by the Department pursuant to 6 NYCRR 621.3(a)(4). *Owners or operators* of *construction activities* that are required to obtain *UPA* permits

must submit a preliminary SWPPP to the appropriate DEC Permit Administrator at the Regional Office listed in Appendix F at the time all other necessary *UPA* permit applications are submitted. The preliminary SWPPP must include sufficient information to demonstrate that the *construction activity* qualifies for authorization under this permit,

c. the final SWPPP has been prepared, and

d. a complete NOI has been submitted to the Department in accordance with the requirements of this permit.

3. An *owner or operator* that has satisfied the requirements of Part II.C.2 above will be authorized to *discharge* stormwater from their *construction activity* in accordance with the following schedule:

   a. For *construction activities* that are <u>not</u> subject to the requirements of a *regulated, traditional land use control MS4*:

      (i) Five (5) business days from the date the Department receives a complete electronic version of the NOI (eNOI) for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.; or

      (ii) Sixty (60) business days from the date the Department receives a complete NOI (electronic or paper version) for *construction activities* with a SWPPP that has <u>not</u> been prepared in conformance with the design criteria in technical standard referenced in Part III.B.1. or, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C., the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, or;

      (iii) Ten (10) business days from the date the Department receives a complete paper version of the NOI for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.

b. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*:

(i) Five (5) business days from the date the Department receives both a complete electronic version of the NOI (eNOI) and signed "*MS4* SWPPP Acceptance" form, or

(ii) Ten (10) business days from the date the Department receives both a complete paper version of the NOI and signed "MS4 SWPPP Acceptance" form.

4. Coverage under this permit authorizes stormwater *discharges* from only those areas of disturbance that are identified in the NOI. If an *owner or operator* wishes to have stormwater *discharges* from future or additional areas of disturbance authorized, they must submit a new NOI that addresses that phase of the development, unless otherwise notified by the Department. The *owner or operator* shall not *commence construction activity* on the future or additional areas until their authorization to *discharge* under this permit goes into effect in accordance with Part II.C. of this permit.

D. General Requirements For Owners or Operators With Permit Coverage

1. The *owner or operator* shall ensure that the provisions of the SWPPP are implemented from the *commencement of construction activity* until all areas of disturbance have achieved *final stabilization* and the Notice of Termination ("NOT") has been submitted to the Department in accordance with Part V. of this permit. This includes any changes made to the SWPPP pursuant to Part III.A.4. of this permit.

2. The *owner or operator* shall maintain a copy of the General Permit (GP-0-20-001), NOI, *NOI Acknowledgment Letter*, SWPPP, MS4 SWPPP Acceptance form, inspection reports, responsible contractor's or subcontractor's certification statement (see Part III.A.6.), and all documentation necessary to demonstrate eligibility with this permit at the *construction site* until all disturbed areas have achieved *final stabilization* and the NOT has been submitted to the Department. The documents must be maintained in a secure location, such as a job trailer, on-site construction office, or mailbox with lock. The secure location must be accessible during normal business hours to an individual performing a compliance inspection.

3. The *owner or operator* of a *construction activity* shall not disturb greater than five (5) acres of soil at any one time without prior written authorization from the Department or, in areas under the jurisdiction of a *regulated, traditional land*

use control MS4, the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*). At a minimum, the *owner or operator* must comply with the following requirements in order to be authorized to disturb greater than five (5) acres of soil at any one time:

a. The *owner or operator* shall have a *qualified inspector* conduct **at least** two (2) site inspections in accordance with Part IV.C. of this permit every seven (7) calendar days, for as long as greater than five (5) acres of soil remain disturbed. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

b. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016.

c. The *owner or operator* shall prepare a phasing plan that defines maximum disturbed area per phase and shows required cuts and fills.

d. The *owner or operator* shall install any additional site-specific practices needed to protect water quality.

e. The *owner or operator* shall include the requirements above in their SWPPP.

4. In accordance with statute, regulations, and the terms and conditions of this permit, the Department may suspend or revoke an *owner's or operator's* coverage under this permit at any time if the Department determines that the SWPPP does not meet the permit requirements or consistent with Part VII.K..

5. Upon a finding of significant non-compliance with the practices described in the SWPPP or violation of this permit, the Department may order an immediate stop to all activity at the site until the non-compliance is remedied. The stop work order shall be in writing, describe the non-compliance in detail, and be sent to the *owner or operator*.

6. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*, the *owner or operator* shall notify the

regulated, traditional land use control MS4 in writing of any planned amendments or modifications to the post-construction stormwater management practice component of the SWPPP required by Part III.A. 4. and 5. of this permit. Unless otherwise notified by the *regulated, traditional land use control MS4*, the *owner or operator* shall have the SWPPP amendments or modifications reviewed and accepted by the *regulated, traditional land use control MS4* prior to commencing construction of the post-construction stormwater management practice.

E. Permit Coverage for Discharges Authorized Under GP-0-15-002

1. Upon renewal of SPDES General Permit for Stormwater Discharges from *Construction Activity* (Permit No. GP-0-15-002), an *owner or operator* of *a construction activity* with coverage under GP-0-15-002, as of the effective date of GP- 0-20-001, shall be authorized to *discharge* in accordance with GP- 0-20-001, unless otherwise notified by the Department.

   An *owner or operator* may continue to implement the technical/design components of the post-construction stormwater management controls provided that such design was done in conformance with the technical standards in place at the time of initial project authorization. However, they must comply with the other, non-design provisions of GP-0-20-001.

F. Change of Owner or Operator

1. When property ownership changes or when there is a change in operational control over the construction plans and specifications, the original *owner or operator* must notify the new *owner or operator*, in writing, of the requirement to obtain permit coverage by submitting a NOI with the Department. For *construction activities* subject to the requirements of a *regulated, traditional land use control MS4,* the original *owner or operator* must also notify the MS4, in writing, of the change in ownership at least 30 calendar days prior to the change in ownership.

2. Once the new *owner or operator* obtains permit coverage, the original *owner or operator* shall then submit a completed NOT with the name and permit identification number of the new *owner or operator* to the Department at the address in Part II.B.1. of this permit. If the original *owner or operator* maintains ownership of a portion of the *construction activity* and will disturb soil, they must maintain their coverage under the permit.

3. Permit coverage for the new *owner or operator* will be effective as of the date the Department receives a complete NOI, provided the original *owner or*

operator was not subject to a sixty (60) business day authorization period that has not expired as of the date the Department receives the NOI from the new *owner or operator*.

Part III. STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

A. General SWPPP Requirements

1. A SWPPP shall be prepared and implemented by the *owner or operator* of each *construction activity* covered by this permit. The SWPPP must document the selection, design, installation, implementation and maintenance of the control measures and practices that will be used to meet the effluent limitations in Part I.B. of this permit and where applicable, the post-construction stormwater management practice requirements in Part I.C. of this permit. The SWPPP shall be prepared prior to the submittal of the NOI. The NOI shall be submitted to the Department prior to the *commencement of construction activity*. A copy of the completed, final NOI shall be included in the SWPPP.

2. The SWPPP shall describe the erosion and sediment control practices and where required, post-construction stormwater management practices that will be used and/or constructed to reduce the *pollutants* in stormwater *discharges* and to assure compliance with the terms and conditions of this permit. In addition, the SWPPP shall identify potential sources of pollution which may reasonably be expected to affect the quality of stormwater *discharges*.

3. All SWPPPs that require the post-construction stormwater management practice component shall be prepared by a *qualified professional* that is knowledgeable in the principles and practices of stormwater management and treatment.

4. The *owner or operator* must keep the SWPPP current so that it at all times accurately documents the erosion and sediment controls practices that are being used or will be used during construction, and all post-construction stormwater management practices that will be constructed on the site. At a minimum, the *owner or operator* shall amend the SWPPP, including construction drawings:

    a. whenever the current provisions prove to be ineffective in minimizing *pollutants* in stormwater *discharges* from the site;

b. whenever there is a change in design, construction, or operation at the *construction site* that has or could have an effect on the *discharge* of *pollutants*;

c. to address issues or deficiencies identified during an inspection by the *qualified inspector,* the Department or other regulatory authority; and

d. to document the final construction conditions.

5. The Department may notify the *owner or operator* at any time that the SWPPP does not meet one or more of the minimum requirements of this permit. The notification shall be in writing and identify the provisions of the SWPPP that require modification. Within fourteen (14) calendar days of such notification, or as otherwise indicated by the Department, the *owner or operator* shall make the required changes to the SWPPP and submit written notification to the Department that the changes have been made. If the *owner or operator* does not respond to the Department's comments in the specified time frame, the Department may suspend the *owner's or operator's* coverage under this permit or require the *owner or operator* to obtain coverage under an individual SPDES permit in accordance with Part II.D.4. of this permit.

6. Prior to the *commencement of construction activity*, the *owner or operator* must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractor(s) and subcontractor(s) that will be responsible for constructing the post-construction stormwater management practices included in the SWPPP. The *owner or operator* shall have each of the contractors and subcontractors identify at least one person from their company that will be responsible for implementation of the SWPPP. This person shall be known as the *trained contractor.* The *owner or operator* shall ensure that at least one *trained contractor* is on site on a daily basis when soil disturbance activities are being performed.

   The *owner or operator* shall have each of the contractors and subcontractors identified above sign a copy of the following certification statement below before they commence any *construction activity*:

   "I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with

the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater *discharge*s from *construction activities* and that it is unlawful for any person to cause or contribute to a violation of *water quality standards*. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

In addition to providing the certification statement above, the certification page must also identify the specific elements of the SWPPP that each contractor and subcontractor will be responsible for and include the name and title of the person providing the signature; the name and title of the *trained contractor* responsible for SWPPP implementation; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification statement is signed. The *owner or operator* shall attach the certification statement(s) to the copy of the SWPPP that is maintained at the *construction site*. If new or additional contractors are hired to implement measures identified in the SWPPP after construction has commenced, they must also sign the certification statement and provide the information listed above.

7. For projects where the Department requests a copy of the SWPPP or inspection reports, the *owner or operator* shall submit the documents in both electronic (PDF only) and paper format within five (5) business days, unless otherwise notified by the Department.

B. Required SWPPP Contents

1. Erosion and sediment control component - All SWPPPs prepared pursuant to this permit shall include erosion and sediment control practices designed in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Where erosion and sediment control practices are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must demonstrate *equivalence* to the technical standard. At a minimum, the erosion and sediment control component of the SWPPP shall include the following:

    a. Background information about the scope of the project, including the location, type and size of project

b. A site map/construction drawing(s) for the project, including a general location map. At a minimum, the site map shall show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s); floodplain/floodway boundaries; wetlands and drainage patterns that could be affected by the *construction activity*; existing and final contours ; locations of different soil types with boundaries; material, waste, borrow or equipment storage areas located on adjacent properties; and location(s) of the stormwater *discharge*(s);

c. A description of the soil(s) present at the site, including an identification of the Hydrologic Soil Group (HSG);

d. A construction phasing plan and sequence of operations describing the intended order of *construction activities*, including clearing and grubbing, excavation and grading, utility and infrastructure installation and any other activity at the site that results in soil disturbance;

e. A description of the minimum erosion and sediment control practices to be installed or implemented for each *construction activity* that will result in soil disturbance. Include a schedule that identifies the timing of initial placement or implementation of each erosion and sediment control practice and the minimum time frames that each practice should remain in place or be implemented;

f. A temporary and permanent soil stabilization plan that meets the requirements of this general permit and the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, for each stage of the project, including initial land clearing and grubbing to project completion and achievement of *final stabilization*;

g. A site map/construction drawing(s) showing the specific location(s), size(s), and length(s) of each erosion and sediment control practice;

h. The dimensions, material specifications, installation details, and operation and maintenance requirements for all erosion and sediment control practices. Include the location and sizing of any temporary sediment basins and structural practices that will be used to divert flows from exposed soils;

i. A maintenance inspection schedule for the contractor(s) identified in Part III.A.6. of this permit, to ensure continuous and effective operation of the erosion and sediment control practices. The maintenance inspection

schedule shall be in accordance with the requirements in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016;

j. A description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a *pollutant* source in the stormwater *discharges*;

k. A description and location of any stormwater *discharges* associated with industrial activity other than construction at the site, including, but not limited to, stormwater *discharges* from asphalt plants and concrete plants located on the *construction site*; and

l. Identification of any elements of the design that are not in conformance with the design criteria in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Include the reason for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. Post-construction stormwater management practice component – The *owner or operator* of any construction project identified in Table 2 of Appendix B as needing post-construction stormwater management practices shall prepare a SWPPP that includes practices designed in conformance with the applicable *sizing criteria* in Part I.C.2.a., c. or d. of this permit and the *performance criteria* in the technical standard, New York State Stormwater Management Design Manual dated January 2015

   Where post-construction stormwater management practices are not designed in conformance with the *performance criteria* in the technical standard, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

   The post-construction stormwater management practice component of the SWPPP shall include the following:

   a. Identification of all post-construction stormwater management practices to be constructed as part of the project. Include the dimensions, material specifications and installation details for each post-construction stormwater management practice;

b. A site map/construction drawing(s) showing the specific location and size of each post-construction stormwater management practice;

c. A Stormwater Modeling and Analysis Report that includes:
   (i) Map(s) showing pre-development conditions, including watershed/subcatchments boundaries, flow paths/routing, and design points;

   (ii) Map(s) showing post-development conditions, including watershed/subcatchments boundaries, flow paths/routing, design points and post-construction stormwater management practices;

   (iii) Results of stormwater modeling (i.e. hydrology and hydraulic analysis) for the required storm events. Include supporting calculations (model runs), methodology, and a summary table that compares pre and post-development runoff rates and volumes for the different storm events;

   (iv) Summary table, with supporting calculations, which demonstrates that each post-construction stormwater management practice has been designed in conformance with the *sizing criteria* included in the Design Manual;

   (v) Identification of any *sizing criteria* that is not required based on the requirements included in Part I.C. of this permit; and

   (vi) Identification of any elements of the design that are not in conformance with the *performance criteria* in the Design Manual. Include the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the Design Manual;

d. Soil testing results and locations (test pits, borings);

e. Infiltration test results, when required; and

f. An operations and maintenance plan that includes inspection and maintenance schedules and actions to ensure continuous and effective operation of each post-construction stormwater management practice. The plan shall identify the entity that will be responsible for the long term operation and maintenance of each practice.

3. Enhanced Phosphorus Removal Standards - All construction projects identified in Table 2 of Appendix B that are located in the watersheds identified in Appendix C shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the applicable *sizing criteria* in Part I.C.2. b., c. or d. of this permit and the *performance criteria,* Enhanced Phosphorus Removal Standards included in the Design Manual. At a minimum, the post-construction stormwater management practice component of the SWPPP shall include items 2.a - 2.f. above.

C. Required SWPPP Components by Project Type

Unless otherwise notified by the Department, *owners or operators* of *construction activities* identified in Table 1 of Appendix B are required to prepare a SWPPP that only includes erosion and sediment control practices designed in conformance with Part III.B.1 of this permit. *Owners or operators* of the *construction activities* identified in Table 2 of Appendix B shall prepare a SWPPP that also includes post-construction stormwater management practices designed in conformance with Part III.B.2 or 3 of this permit.

Part IV. INSPECTION AND MAINTENANCE REQUIREMENTS

A. General Construction Site Inspection and Maintenance Requirements

1. The *owner or operator* must ensure that all erosion and sediment control practices (including pollution prevention measures) and all post-construction stormwater management practices identified in the SWPPP are inspected and maintained in accordance with Part IV.B. and C. of this permit.

2. The terms of this permit shall not be construed to prohibit the State of New York from exercising any authority pursuant to the ECL, common law or federal law, or prohibit New York State from taking any measures, whether civil or criminal, to prevent violations of the laws of the State of New York or protect the public health and safety and/or the environment.

B. Contractor Maintenance Inspection Requirements

1. The *owner or operator* of each *construction activity* identified in Tables 1 and 2 of Appendix B shall have a *trained contractor* inspect the erosion and sediment control practices and pollution prevention measures being implemented within the active work area daily to ensure that they are being maintained in effective operating condition at all times. If deficiencies are identified, the contractor shall

begin implementing corrective actions within one business day and shall complete the corrective actions in a reasonable time frame.

2. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *trained contractor* can stop conducting the maintenance inspections. The *trained contractor* shall begin conducting the maintenance inspections in accordance with Part IV.B.1. of this permit as soon as soil disturbance activities resume.

3. For construction sites where soil disturbance activities have been shut down with partial project completion, the *trained contractor* can stop conducting the maintenance inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational.

C. Qualified Inspector Inspection Requirements

The *owner or operator* shall have a *qualified inspector* conduct site inspections in conformance with the following requirements:

[Note: The *trained contractor* identified in Part III.A.6. and IV.B. of this permit **cannot** conduct the *qualified inspector* site inspections unless they meet the *qualified inspector* qualifications included in Appendix A. In order to perform these inspections, the *trained contractor* would have to be a:

- licensed Professional Engineer,
- Certified Professional in Erosion and Sediment Control (CPESC),
- New York State Erosion and Sediment Control Certificate Program holder
- Registered Landscape Architect, or
- someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity].

1. A *qualified inspector* shall conduct site inspections for all *construction activities* identified in Tables 1 and 2 of Appendix B, with the exception of:

   a. the construction of a single family residential subdivision with 25% or less *impervious cover* at total site build-out that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located

in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;

b. the construction of a single family home that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;

c. construction on agricultural property that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres; and

d. *construction activities* located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

2. Unless otherwise notified by the Department, the *qualified inspector* shall conduct site inspections in accordance with the following timetable:

a. For construction sites where soil disturbance activities are on-going, the *qualified inspector* shall conduct a site inspection at least once every seven (7) calendar days.

b. For construction sites where soil disturbance activities are on-going and the *owner or operator* has received authorization in accordance with Part II.D.3 to disturb greater than five (5) acres of soil at any one time, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

c. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *qualified inspector* shall conduct a site inspection at least once every thirty (30) calendar days. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to reducing the frequency of inspections.

d. For construction sites where soil disturbance activities have been shut down with partial project completion, the *qualified inspector* can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to the shutdown. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the *owner or operator* shall have the *qualified inspector* perform a final inspection and certify that all disturbed areas have achieved *final stabilization,* and all temporary, structural erosion and sediment control measures have been removed*;* and that all post-construction stormwater management practices have been constructed in conformance with the SWPPP by signing the "*Final Stabilization*" and "Post-Construction Stormwater Management Practice" certification statements on the NOT. The *owner or operator* shall then submit the completed NOT form to the address in Part II.B.1 of this permit.

e. For construction sites that directly *discharge* to one of the 303(d) segments listed in Appendix E or is located in one of the watersheds listed in Appendix C, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

3. At a minimum, the *qualified inspector* shall inspect all erosion and sediment control practices and pollution prevention measures to ensure integrity and effectiveness, all post-construction stormwater management practices under construction to ensure that they are constructed in conformance with the SWPPP, all areas of disturbance that have not achieved *final stabilization,* all points of *discharge* to natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site*, and all points of *discharge* from the *construction site*.

4. The *qualified inspector* shall prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection report shall include and/or address the following:

a. Date and time of inspection;

b. Name and title of person(s) performing inspection;

c. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;

d. A description of the condition of the runoff at all points of *discharge* from the *construction site*. This shall include identification of any *discharges* of sediment from the *construction site*. Include *discharges* from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow;

e. A description of the condition of all natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site* which receive runoff from disturbed areas. This shall include identification of any *discharges* of sediment to the surface waterbody;

f. Identification of all erosion and sediment control practices and pollution prevention measures that need repair or maintenance;

g. Identification of all erosion and sediment control practices and pollution prevention measures that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;

h. Description and sketch of areas with active soil disturbance activity, areas that have been disturbed but are inactive at the time of the inspection, and areas that have been stabilized (temporary and/or final) since the last inspection;

i. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards;

j. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices and pollution prevention measures; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s);

k. Identification and status of all corrective actions that were required by previous inspection; and

l. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The *qualified inspector* shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.

5. Within one business day of the completion of an inspection, the *qualified inspector* shall notify the *owner or operator* and appropriate contractor or subcontractor identified in Part III.A.6. of this permit of any corrective actions that need to be taken. The contractor or subcontractor shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.

6. All inspection reports shall be signed by the *qualified inspector.* Pursuant to Part II.D.2. of this permit, the inspection reports shall be maintained on site with the SWPPP.

Part V. TERMINATION OF PERMIT COVERAGE

A. Termination of Permit Coverage

1. An *owner or operator* that is eligible to terminate coverage under this permit must submit a completed NOT form to the address in Part II.B.1 of this permit. The NOT form shall be one which is associated with this permit, signed in accordance with Part VII.H of this permit.

2. An *owner or operator* may terminate coverage when one or more the following conditions have been met:

   a. Total project completion - All *construction activity* identified in the SWPPP has been completed; and all areas of disturbance have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices have been constructed in conformance with the SWPPP and are operational;

b. Planned shutdown with partial project completion - All soil disturbance activities have ceased; and all areas disturbed as of the project shutdown date have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational;

c. A new *owner or operator* has obtained coverage under this permit in accordance with Part II.F. of this permit.

d. The *owner or operator* obtains coverage under an alternative SPDES general permit or an individual SPDES permit.

3. For *construction activities* meeting subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *qualified inspector* perform a final site inspection prior to submitting the NOT. The *qualified inspector* shall, by signing the "*Final Stabilization*" and "Post-Construction Stormwater Management Practice certification statements on the NOT, certify that all the requirements in Part V.A.2.a. or b. of this permit have been achieved.

4. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4* and meet subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *regulated, traditional land use control MS4* sign the "MS4 Acceptance" statement on the NOT in accordance with the requirements in Part VII.H. of this permit. The *regulated, traditional land use control MS4* official, by signing this statement, has determined that it is acceptable for the *owner or operator* to submit the NOT in accordance with the requirements of this Part. The *regulated, traditional land use control MS4* can make this determination by performing a final site inspection themselves or by accepting the *qualified inspector*'s final site inspection certification(s) required in Part V.A.3. of this permit.

5. For *construction activities* that require post-construction stormwater management practices and meet subdivision 2a. of this Part, the *owner or operator* must, prior to submitting the NOT, ensure one of the following:

   a. the post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain such practice(s) have been deeded to the municipality in which the practice(s) is located,

b. an executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s),

c. for post-construction stormwater management practices that are privately owned, the *owner or operator* has a mechanism in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the *owner or operator's* deed of record,

d. for post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university, hospital), government agency or authority, or public utility; the *owner or operator* has policy and procedures in place that ensures operation and maintenance of the practices in accordance with the operation and maintenance plan.

Part VI. REPORTING AND RETENTION RECORDS

A. Record Retention

The *owner or operator* shall retain a copy of the NOI, NOI Acknowledgment Letter, SWPPP, MS4 SWPPP Acceptance form and any inspection reports that were prepared in conjunction with this permit for a period of at least five (5) years from the date that the Department receives a complete NOT submitted in accordance with Part V. of this general permit.

B. Addresses

With the exception of the NOI, NOT, and MS4 SWPPP Acceptance form (which must be submitted to the address referenced in Part II.B.1 of this permit), all written correspondence requested by the Department, including individual permit applications, shall be sent to the address of the appropriate DOW Water (SPDES) Program contact at the Regional Office listed in Appendix F.

Part VII. STANDARD PERMIT CONDITIONS

A. Duty to Comply

The *owner or operator* must comply with all conditions of this permit. All contractors and subcontractors associated with the project must comply with the terms of the SWPPP. Any non-compliance with this permit constitutes a violation of the Clean Water

Act (CWA) and the ECL and is grounds for an enforcement action against the *owner or operator* and/or the contractor/subcontractor; permit revocation, suspension or modification; or denial of a permit renewal application. Upon a finding of significant non-compliance with this permit or the applicable SWPPP, the Department may order an immediate stop to all *construction activity* at the site until the non-compliance is remedied. The stop work order shall be in writing, shall describe the non-compliance in detail, and shall be sent to the *owner or operator*.

If any human remains or archaeological remains are encountered during excavation, the *owner or operator* must immediately cease, or cause to cease, all *construction activity* in the area of the remains and notify the appropriate Regional Water Engineer (RWE). *Construction activity* shall not resume until written permission to do so has been received from the RWE.

B. Continuation of the Expired General Permit

This permit expires five (5) years from the effective date. If a new general permit is not issued prior to the expiration of this general permit, an *owner or operator* with coverage under this permit may continue to operate and *discharge* in accordance with the terms and conditions of this general permit, if it is extended pursuant to the State Administrative Procedure Act and 6 NYCRR Part 621, until a new general permit is issued.

C. Enforcement

Failure of the *owner or operator,* its contractors, subcontractors, agents and/or assigns to strictly adhere to any of the permit requirements contained herein shall constitute a violation of this permit. There are substantial criminal, civil, and administrative penalties associated with violating the provisions of this permit. Fines of up to $37,500 per day for each violation and imprisonment for up to fifteen (15) years may be assessed depending upon the nature and degree of the offense.

D. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for an *owner or operator* in an enforcement action that it would have been necessary to halt or reduce the *construction activity* in order to maintain compliance with the conditions of this permit.

E. Duty to Mitigate

The *owner or operator* and its contractors and subcontractors shall take all reasonable steps to *minimize* or prevent any *discharge* in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

F. Duty to Provide Information

The *owner or operator* shall furnish to the Department, within a reasonable specified time period of a written request, all documentation necessary to demonstrate eligibility and any information to determine compliance with this permit or to determine whether cause exists for modifying or revoking this permit, or suspending or denying coverage under this permit, in accordance with the terms and conditions of this permit. The NOI, SWPPP and inspection reports required by this permit are public documents that the *owner or operator* must make available for review and copying by any person within five (5) business days of the *owner or operator* receiving a written request by any such person to review these documents. Copying of documents will be done at the requester's expense.

G. Other Information

When the *owner or operator* becomes aware that they failed to submit any relevant facts, or submitted incorrect information in the NOI or in any of the documents required by this permit , or have made substantive revisions to the SWPPP (e.g. the scope of the project changes significantly, the type of post-construction stormwater management practice(s) changes, there is a reduction in the sizing of the post-construction stormwater management practice, or there is an increase in the disturbance area or *impervious area*), which were not reflected in the original NOI submitted to the Department, they shall promptly submit such facts or information to the Department using the contact information in Part II.A. of this permit. Failure of the *owner or operator* to correct or supplement any relevant facts within five (5) business days of becoming aware of the deficiency shall constitute a violation of this permit.

H. Signatory Requirements

1. All NOIs and NOTs shall be signed as follows:

    a. For a corporation these forms shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

(i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or

(ii) the manager of one or more manufacturing, production or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

b. For a partnership or sole proprietorship these forms shall be signed by a general partner or the proprietor, respectively; or

c. For a municipality, State, Federal, or other public agency these forms shall be signed by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:

(i) the chief executive officer of the agency, or

(ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

2. The SWPPP and other information requested by the Department shall be signed by a person described in Part VII.H.1. of this permit or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in Part VII.H.1. of this permit;

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field,

superintendent, position of *equivalent* responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position) and,

c. The written authorization shall include the name, title and signature of the authorized representative and be attached to the SWPPP.

3. All inspection reports shall be signed by the *qualified inspector* that performs the inspection.

4. The MS4 SWPPP Acceptance form shall be signed by the principal executive officer or ranking elected official from the *regulated, traditional land use control MS4,* or by a duly authorized representative of that person.

   It shall constitute a permit violation if an incorrect and/or improper signatory authorizes any required forms, SWPPP and/or inspection reports.

I. Property Rights

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations. *Owners or operators* must obtain any applicable conveyances, easements, licenses and/or access to real property prior to *commencing construction activity*.

J. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

K. Requirement to Obtain Coverage Under an Alternative Permit

1. The Department may require any owner or operator authorized by this permit to apply for and/or obtain either an individual SPDES permit or another SPDES general permit. When the Department requires any discharger authorized by a general permit to apply for an individual SPDES permit, it shall notify the discharger in writing that a permit application is required. This notice shall

include a brief statement of the reasons for this decision, an application form, a statement setting a time frame for the owner or operator to file the application for an individual SPDES permit, and a deadline, not sooner than 180 days from owner or operator receipt of the notification letter, whereby the authorization to discharge under this general permit shall be terminated. Applications must be submitted to the appropriate Permit Administrator at the Regional Office. The Department may grant additional time upon demonstration, to the satisfaction of the Department, that additional time to apply for an alternative authorization is necessary or where the Department has not provided a permit determination in accordance with Part 621 of this Title.

2. When an individual SPDES permit is issued to a discharger authorized to *discharge* under a general SPDES permit for the same *discharge*(s), the general permit authorization for outfalls authorized under the individual SPDES permit is automatically terminated on the effective date of the individual permit unless termination is earlier in accordance with 6 NYCRR Part 750.

L. Proper Operation and Maintenance

The *owner or operator* shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the *owner or operator* to achieve compliance with the conditions of this permit and with the requirements of the SWPPP.

M. Inspection and Entry

The *owner or operator* shall allow an authorized representative of the Department, EPA, applicable county health department, or, in the case of a *construction site* which *discharges* through an *MS4*, an authorized representative of the *MS4* receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the owner’s or operator's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;

2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and

3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment), practices or operations regulated or required by this permit.

4. Sample or monitor at reasonable times, for purposes of assuring permit compliance or as otherwise authorized by the Act or ECL, any substances or parameters at any location.

N. Permit Actions

This permit may, at any time, be modified, suspended, revoked, or renewed by the Department in accordance with 6 NYCRR Part 621. The filing of a request by the *owner or operator* for a permit modification, revocation and reissuance, termination, a notification of planned changes or anticipated noncompliance does not limit, diminish and/or stay compliance with any terms of this permit.

O. Definitions

Definitions of key terms are included in Appendix A of this permit.

P. Re-Opener Clause

1. If there is evidence indicating potential or realized impacts on water quality due to any stormwater discharge associated with construction activity covered by this permit, the owner or operator of such discharge may be required to obtain an individual permit or alternative general permit in accordance with Part VII.K. of this permit or the permit may be modified to include different limitations and/or requirements.

2. Any Department initiated permit modification, suspension or revocation will be conducted in accordance with 6 NYCRR Part 621, 6 NYCRR 750-1.18, and 6 NYCRR 750-1.20.

Q. Penalties for Falsification of Forms and Reports

In accordance with 6NYCRR Part 750-2.4 and 750-2.5, any person who knowingly makes any false material statement, representation, or certification in any application, record, report or other document filed or required to be maintained under this permit, including reports of compliance or noncompliance shall, upon conviction, be punished in accordance with ECL §71-1933 and or Articles 175 and 210 of the New York State Penal Law.

R. Other Permits

Nothing in this permit relieves the *owner or operator* from a requirement to obtain any other permits required by law.

APPENDIX A – Acronyms and Definitions

Acronyms

APO – Agency Preservation Officer
BMP – Best Management Practice
CPESC – Certified Professional in Erosion and Sediment Control
Cpv – Channel Protection Volume
CWA – Clean Water Act (or the Federal Water Pollution Control Act, 33 U.S.C. §1251 et seq)
DOW – Division of Water
EAF – Environmental Assessment Form
ECL - Environmental Conservation Law
EPA – U. S. Environmental Protection Agency
HSG – Hydrologic Soil Group
MS4 – Municipal Separate Storm Sewer System
NOI – Notice of Intent
NOT – Notice of Termination
NPDES – National Pollutant Discharge Elimination System
OPRHP – Office of Parks, Recreation and Historic Places
Qf – Extreme Flood
Qp – Overbank Flood
RRv – Runoff Reduction Volume
RWE – Regional Water Engineer
SEQR – State Environmental Quality Review
SEQRA - State Environmental Quality Review Act
SHPA – State Historic Preservation Act
SPDES – State Pollutant Discharge Elimination System
SWPPP – Stormwater Pollution Prevention Plan
TMDL – Total Maximum Daily Load
UPA – Uniform Procedures Act
USDA – United States Department of Agriculture
WQv – Water Quality Volume

Definitions

All definitions in this section are solely for the purposes of this permit.

Agricultural Building – a structure designed and constructed to house farm implements, hay, grain, poultry, livestock or other horticultural products; excluding any structure designed, constructed or used, in whole or in part, for human habitation, as a place of employment where agricultural products are processed, treated or packaged, or as a place used by the public.

Agricultural Property –means the land for construction of a barn, *agricultural building*, silo, stockyard, pen or other structural practices identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State" prepared by the Department in cooperation with agencies of New York Nonpoint Source Coordinating Committee (dated June 2007).

Alter Hydrology from Pre to Post-Development Conditions - means the post-development peak flow rate(s) has increased by more than 5% of the pre-developed condition for the design storm of interest (e.g. 10 yr and 100 yr).

Combined Sewer - means a sewer that is designed to collect and convey both "sewage" and "stormwater".

Commence (Commencement of) Construction Activities - means the initial disturbance of soils associated with clearing, grading or excavation activities; or other construction related activities that disturb or expose soils such as demolition, stockpiling of fill material, and the initial installation of erosion and sediment control practices required in the SWPPP. See definition for "*Construction Activity(ies)*" also.

Construction Activity(ies) - means any clearing, grading, excavation, filling, demolition or stockpiling activities that result in soil disturbance. Clearing activities can include, but are not limited to, logging equipment operation, the cutting and skidding of trees, stump removal and/or brush root removal. Construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility.

Construction Site – means the land area where *construction activity(ies)* will occur. See definition for "*Commence (Commencement of) Construction Activities"* and "*Larger Common Plan of Development or Sale" also.*

Dewatering – means the act of draining rainwater and/or groundwater from building foundations, vaults or excavations/trenches.

Direct Discharge (to a specific surface waterbody) - means that runoff flows from a *construction site* by overland flow and the first point of discharge is the specific surface waterbody, or runoff flows from a *construction site* to a separate storm sewer system

and the first point of discharge from the separate storm sewer system is the specific surface waterbody.

Discharge(s) - means any addition of any pollutant to waters of the State through an outlet or *point source*.

Embankment –means an earthen or rock slope that supports a road/highway.

Endangered or Threatened Species – see 6 NYCRR Part 182 of the Department's rules and regulations for definition of terms and requirements.

Environmental Conservation Law (ECL) - means chapter 43-B of the Consolidated Laws of the State of New York, entitled the Environmental Conservation Law.

Equivalent (Equivalence) – means that the practice or measure meets all the performance, longevity, maintenance, and safety objectives of the technical standard and will provide an equal or greater degree of water quality protection.

Final Stabilization - means that all soil disturbance activities have ceased and a uniform, perennial vegetative cover with a density of eighty (80) percent over the entire pervious surface has been established; or other equivalent stabilization measures, such as permanent landscape mulches, rock rip-rap or washed/crushed stone have been applied on all disturbed areas that are not covered by permanent structures, concrete or pavement.

General SPDES permit - means a SPDES permit issued pursuant to 6 NYCRR Part 750-1.21 and Section 70-0117 of the ECL authorizing a category of discharges.

Groundwater(s) - means waters in the saturated zone. The saturated zone is a subsurface zone in which all the interstices are filled with water under pressure greater than that of the atmosphere. Although the zone may contain gas-filled interstices or interstices filled with fluids other than water, it is still considered saturated.

Historic Property – means any building, structure, site, object or district that is listed on the State or National Registers of Historic Places or is determined to be eligible for listing on the State or National Registers of Historic Places.

Impervious Area (Cover) - means all impermeable surfaces that cannot effectively infiltrate rainfall. This includes paved, concrete and gravel surfaces (i.e. parking lots, driveways, roads, runways and sidewalks); building rooftops and miscellaneous impermeable structures such as patios, pools, and sheds.

Infeasible – means not technologically possible, or not economically practicable and achievable in light of best industry practices.

Larger Common Plan of Development or Sale - means a contiguous area where multiple separate and distinct *construction activities* are occurring, or will occur, under one plan. The term “plan” in “larger common plan of development or sale” is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, marketing plan, advertisement, drawing, permit application, State Environmental Quality Review Act (SEQRA) environmental assessment form or other documents, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating that *construction activities* may occur on a specific plot.

For discrete construction projects that are located within a larger common plan of development or sale that are at least 1/4 mile apart, each project can be treated as a separate plan of development or sale provided any interconnecting road, pipeline or utility project that is part of the same “common plan” is not concurrently being disturbed.

Minimize – means reduce and/or eliminate to the extent achievable using control measures (including best management practices) that are technologically available and economically practicable and achievable in light of best industry practices.

Municipal Separate Storm Sewer (MS4) - a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

(i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to surface waters of the State*;*
(ii) Designed or used for collecting or conveying stormwater;
(iii) Which is not a *combined sewer*; and
(iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

National Pollutant Discharge Elimination System (NPDES) - means the national system for the issuance of wastewater and stormwater permits under the Federal Water Pollution Control Act (Clean Water Act).

Natural Buffer –means an undisturbed area with natural cover running along a surface water (e.g. wetland, stream, river, lake, etc.).

New Development – means any land disturbance that does not meet the definition of Redevelopment Activity included in this appendix.

New York State Erosion and Sediment Control Certificate Program – a certificate program that establishes and maintains a process to identify and recognize individuals who are capable of developing, designing, inspecting and maintaining erosion and sediment control plans on projects that disturb soils in New York State. The certificate program is administered by the New York State Conservation District Employees Association.

NOI Acknowledgment Letter - means the letter that the Department sends to an owner or operator to acknowledge the Department's receipt and acceptance of a complete Notice of Intent. This letter documents the owner's or operator's authorization to discharge in accordance with the general permit for stormwater discharges from *construction activity*.

Nonpoint Source - means any source of water pollution or pollutants which is not a discrete conveyance or *point source* permitted pursuant to Title 7 or 8 of Article 17 of the Environmental Conservation Law (see ECL Section 17-1403).

Overbank –means flow events that exceed the capacity of the stream channel and spill out into the adjacent floodplain.

Owner or Operator - means the person, persons or legal entity which owns or leases the property on which the *construction activity* is occurring; an entity that has operational control over the construction plans and specifications, including the ability to make modifications to the plans and specifications; and/or an entity that has day-to-day operational control of those activities at a project that are necessary to ensure compliance with the permit conditions.

Performance Criteria – means the design criteria listed under the "Required Elements" sections in Chapters 5, 6 and 10 of the technical standard, New York State Stormwater Management Design Manual, dated January 2015. It does not include the Sizing Criteria (i.e. WQv, RRv, Cpv, Qp and Qf) in Part I.C.2. of the permit.

Point Source - means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel or other floating craft, or landfill leachate collection system from which *pollutants* are or may be discharged.

Pollutant - means dredged spoil, filter backwash, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand and industrial, municipal, agricultural waste and ballast discharged into water; which may cause or might reasonably be expected to cause pollution of the waters of the state in contravention of the standards or guidance values adopted as provided in 6 NYCRR Parts 700 et seq .

Qualified Inspector - means a person that is knowledgeable in the principles and practices of erosion and sediment control, such as a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder or other Department endorsed individual(s).

It can also mean someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect shall receive four (4) hours of training every three (3) years.

It can also mean a person that meets the *Qualified Professional* qualifications in addition to the *Qualified Inspector* qualifications.

Note: Inspections of any post-construction stormwater management practices that include structural components, such as a dam for an impoundment, shall be performed by a licensed Professional Engineer.

Qualified Professional - means a person that is knowledgeable in the principles and practices of stormwater management and treatment, such as a licensed Professional Engineer, Registered Landscape Architect or other Department endorsed individual(s). Individuals preparing SWPPPs that require the post-construction stormwater management practice component must have an understanding of the principles of hydrology, water quality management practice design, water quantity control design, and, in many cases, the principles of hydraulics. All components of the SWPPP that involve the practice of engineering, as defined by the NYS Education Law (see Article 145), shall be prepared by, or under the direct supervision of, a professional engineer licensed to practice in the State of New York.

Redevelopment Activity(ies) – means the disturbance and reconstruction of existing impervious area, including impervious areas that were removed from a project site within five (5) years of preliminary project plan submission to the local government (i.e. site plan, subdivision, etc.).

Regulated, Traditional Land Use Control MS4 - means a city, town or village with land use control authority that is authorized to discharge under New York State DEC's

SPDES General Permit For Stormwater Discharges from Municipal Separate Stormwater Sewer Systems (MS4s) or the City of New York's Individual SPDES Permit for their Municipal Separate Storm Sewer Systems (NY-0287890).

Routine Maintenance Activity - means *construction activity* that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility, including, but not limited to:

- Re-grading of gravel roads or parking lots,
- Cleaning and shaping of existing roadside ditches and culverts that maintains the approximate original line and grade, and hydraulic capacity of the ditch,
- Cleaning and shaping of existing roadside ditches that does not maintain the approximate original grade, hydraulic capacity and purpose of the ditch if the changes to the line and grade, hydraulic capacity or purpose of the ditch are installed to improve water quality and quantity controls (e.g. installing grass lined ditch),
- Placement of aggregate shoulder backing that stabilizes the transition between the road shoulder and the ditch or *embankment*,
- Full depth milling and filling of existing asphalt pavements, replacement of concrete pavement slabs, and similar work that does not expose soil or disturb the bottom six (6) inches of subbase material,
- Long-term use of equipment storage areas at or near highway maintenance facilities,
- Removal of sediment from the edge of the highway to restore a previously existing sheet-flow drainage connection from the highway surface to the highway ditch or *embankment*,
- Existing use of Canal Corp owned upland disposal sites for the canal, and
- Replacement of curbs, gutters, sidewalks and guide rail posts.

Site limitations – means site conditions that prevent the use of an infiltration technique and or infiltration of the total WQv. Typical site limitations include: seasonal high groundwater, shallow depth to bedrock, and soils with an infiltration rate less than 0.5 inches/hour. The existence of site limitations shall be confirmed and documented using actual field testing (i.e. test pits, soil borings, and infiltration test) or using information from the most current United States Department of Agriculture (USDA) Soil Survey for the County where the project is located.

Sizing Criteria – means the criteria included in Part I.C.2 of the permit that are used to size post-construction stormwater management control practices. The criteria include; Water Quality Volume (WQv), Runoff Reduction Volume (RRv), Channel Protection Volume (Cpv), *Overbank* Flood (Qp), and Extreme Flood (Qf).

State Pollutant Discharge Elimination System (SPDES) - means the system established pursuant to Article 17 of the ECL and 6 NYCRR Part 750 for issuance of permits authorizing discharges to the waters of the state.

Steep Slope – means land area designated on the current United States Department of Agriculture ("USDA") Soil Survey as Soil Slope Phase "D", (provided the map unit name is inclusive of slopes greater than 25%) , or Soil Slope Phase E or F, (regardless of the map unit name), or a combination of the three designations.

Streambank – as used in this permit, means the terrain alongside the bed of a creek or stream. The bank consists of the sides of the channel, between which the flow is confined.

Stormwater Pollution Prevention Plan (SWPPP) – means a project specific report, including construction drawings, that among other things: describes the construction activity(ies), identifies the potential sources of pollution at the *construction site*; describes and shows the stormwater controls that will be used to control the pollutants (i.e. erosion and sediment controls; for many projects, includes post-construction stormwater management controls); and identifies procedures the *owner or operator* will implement to comply with the terms and conditions of the permit. See Part III of the permit for a complete description of the information that must be included in the SWPPP.

Surface Waters of the State - shall be construed to include lakes, bays, sounds, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Atlantic ocean within the territorial seas of the state of New York and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters that do not combine or effect a junction with natural surface waters), which are wholly or partially within or bordering the state or within its jurisdiction. Waters of the state are further defined in 6 NYCRR Parts 800 to 941.

Temporarily Ceased – means that an existing disturbed area will not be disturbed again within 14 calendar days of the previous soil disturbance.

Temporary Stabilization - means that exposed soil has been covered with material(s) as set forth in the technical standard, New York Standards and Specifications for Erosion and Sediment Control, to prevent the exposed soil from eroding. The materials can include, but are not limited to, mulch, seed and mulch, and erosion control mats (e.g. jute twisted yarn, excelsior wood fiber mats).

Total Maximum Daily Loads (TMDLs) - A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and *nonpoint source*s. It is a calculation of the maximum amount of a pollutant that a waterbody can receive on a daily basis and still meet *water quality standards*, and an allocation of that amount to the pollutant's sources. A TMDL stipulates wasteload allocations (WLAs) for *point source* discharges, load allocations (LAs) for *nonpoint source*s, and a margin of safety (MOS).

Trained Contractor - means an employee from the contracting (construction) company, identified in Part III.A.6., that has received four (4) hours of Department endorsed

training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the *trained contractor* shall receive four (4) hours of training every three (3) years.

It can also mean an employee from the contracting (construction) company, identified in Part III.A.6., that meets the *qualified inspector* qualifications (e.g. licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder, or someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity).

The *trained contractor* is responsible for the day to day implementation of the SWPPP.

Uniform Procedures Act (UPA) Permit - means a permit required under 6 NYCRR Part 621 of the Environmental Conservation Law (ECL), Article 70.

Water Quality Standard - means such measures of purity or quality for any waters in relation to their reasonable and necessary use as promulgated in 6 NYCRR Part 700 et seq.

APPENDIX B – Required SWPPP Components by Project Type

Table 1
Construction Activities that Require the Preparation of a SWPPP That Only Includes Erosion and Sediment Controls

The following construction activities that involve soil disturbances of one (1) or more acres of land, but less than five (5) acres:

- Single family home not located in one of the watersheds listed in Appendix C or not *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions with 25% or less impervious cover at total site build-out and not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E
- Construction of a barn or other *agricultural building*, silo, stock yard or pen.

The following construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land:

All construction activities located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Installation of underground, linear utilities; such as gas lines, fiber-optic cable, cable TV, electric, telephone, sewer mains, and water mains
- Environmental enhancement projects, such as wetland mitigation projects, stormwater retrofits and stream restoration projects
- Pond construction
- Linear bike paths running through areas with vegetative cover, including bike paths surfaced with an impervious cover
- Cross-country ski trails and walking/hiking trails
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are not part of residential, commercial or institutional development;
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that include incidental shoulder or curb work along an existing highway to support construction of the sidewalk, bike path or walking path.
- Slope stabilization projects
- Slope flattening that changes the grade of the site, but does not significantly change the runoff characteristics

Table 1 (Continued) CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT ONLY INCLUDES EROSION AND SEDIMENT CONTROLS

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Spoil areas that will be covered with vegetation
- Vegetated open space projects (i.e. recreational parks, lawns, meadows, fields, downhill ski trails) excluding projects that *alter hydrology from pre to post development* conditions,
- Athletic fields (natural grass) that do not include the construction or reconstruction of *impervious area* and do not *alter hydrology from pre to post development* conditions
- Demolition project where vegetation will be established, and no redevelopment is planned
- Overhead electric transmission line project that does not include the construction of permanent access roads or parking areas surfaced with *impervious cover*
- Structural practices as identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State", excluding projects that involve soil disturbances of greater than five acres and construction activities that include the construction or reconstruction of impervious area
- Temporary access roads, median crossovers, detour roads, lanes, or other temporary impervious areas that will be restored to pre-construction conditions once the construction activity is complete

Table 2

CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Single family home located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family home that disturbs five (5) or more acres of land
- Single family residential subdivisions located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions that involve soil disturbances of between one (1) and five (5) acres of land with greater than 25% impervious cover at total site build-out
- Single family residential subdivisions that involve soil disturbances of five (5) or more acres of land, and single family residential subdivisions that involve soil disturbances of less than five (5) acres that are part of a larger common plan of development or sale that will ultimately disturb five or more acres of land
- Multi-family residential developments; includes duplexes, townhomes, condominiums, senior housing complexes, apartment complexes, and mobile home parks
- Airports
- Amusement parks
- Breweries, cideries, and wineries, including establishments constructed on agricultural land
- Campgrounds
- Cemeteries that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Commercial developments
- Churches and other places of worship
- Construction of a barn or other *agricultural building* (e.g. silo) and structural practices as identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State" that include the construction or reconstruction of *impervious area*, excluding projects that involve soil disturbances of less than five acres.
- Golf courses
- Institutional development; includes hospitals, prisons, schools and colleges
- Industrial facilities; includes industrial parks
- Landfills
- Municipal facilities; includes highway garages, transfer stations, office buildings, POTW's, water treatment plants, and water storage tanks
- Office complexes
- Playgrounds that include the construction or reconstruction of impervious area
- Sports complexes
- Racetracks; includes racetracks with earthen (dirt) surface
- Road construction or reconstruction, including roads constructed as part of the construction activities listed in Table 1

Table 2 (Continued)

CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Parking lot construction or reconstruction, including parking lots constructed as part of the construction activities listed in Table 1
- Athletic fields (natural grass) that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Athletic fields with artificial turf
- Permanent access roads, parking areas, substations, compressor stations and well drilling pads, surfaced with *impervious cover,* and constructed as part of an over-head electric transmission line project, wind-power project, cell tower project, oil or gas well drilling project, sewer or water main project or other linear utility project
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a residential, commercial or institutional development
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a highway construction or reconstruction project
- All other construction activities that include the construction or reconstruction of *impervious area* or *alter the hydrology from pre to post development* conditions, and are not listed in Table 1

APPENDIX C – Watersheds Requiring Enhanced Phosphorus Removal

Watersheds where *owners or operators* of construction activities identified in Table 2 of Appendix B must prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the Enhanced Phosphorus Removal Standards included in the technical standard, New York State Stormwater Management Design Manual ("Design Manual").

- Entire New York City Watershed located east of the Hudson River **-** Figure 1
- Onondaga Lake Watershed **-** Figure 2
- Greenwood Lake Watershed **-**Figure 3
- Oscawana Lake Watershed – Figure 4
- Kinderhook Lake Watershed – Figure 5

Figure 1 - New York City Watershed East of the Hudson

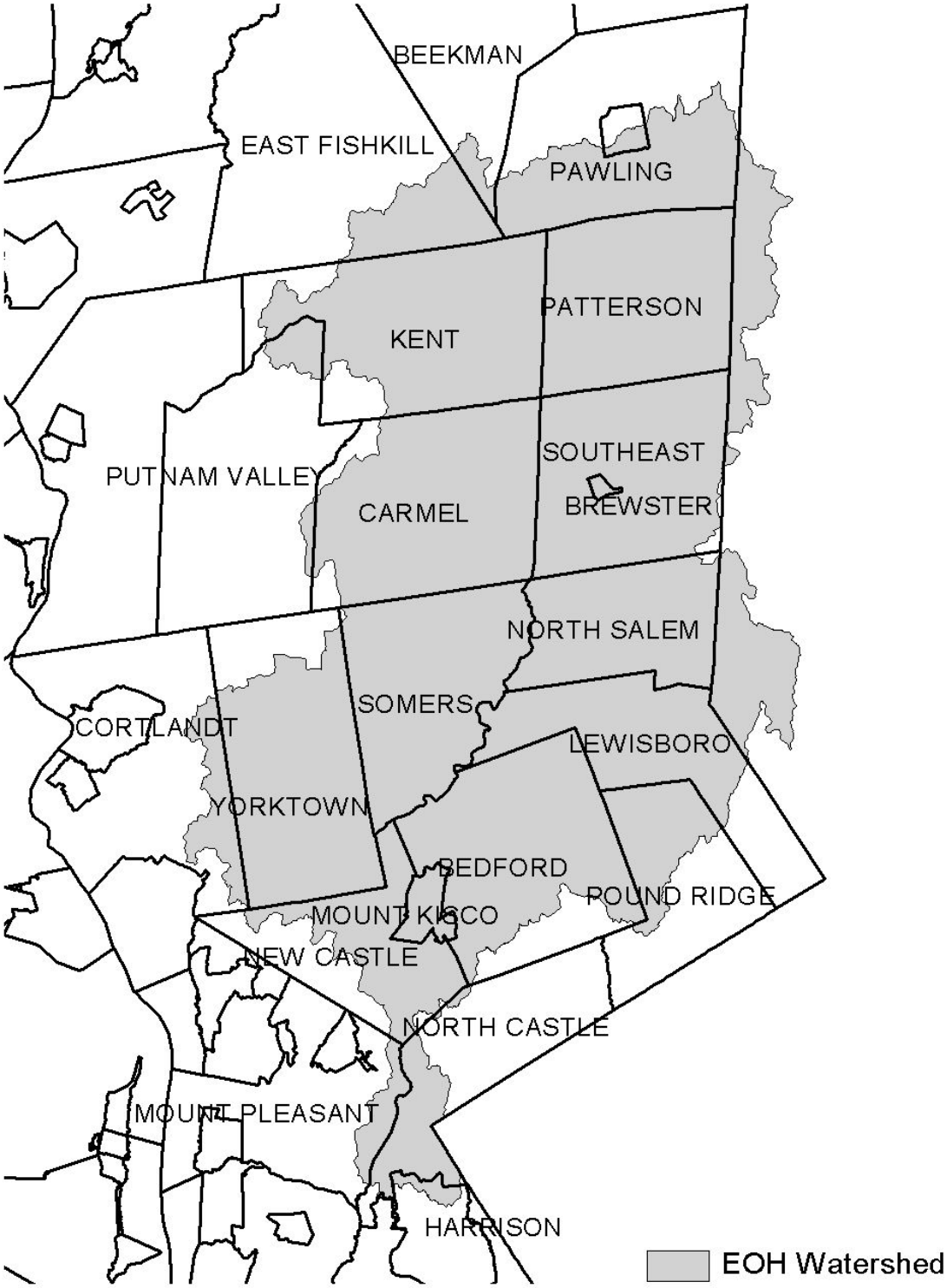


Figure 2 - Onondaga Lake Watershed

Figure 3 - Greenwood Lake Watershed

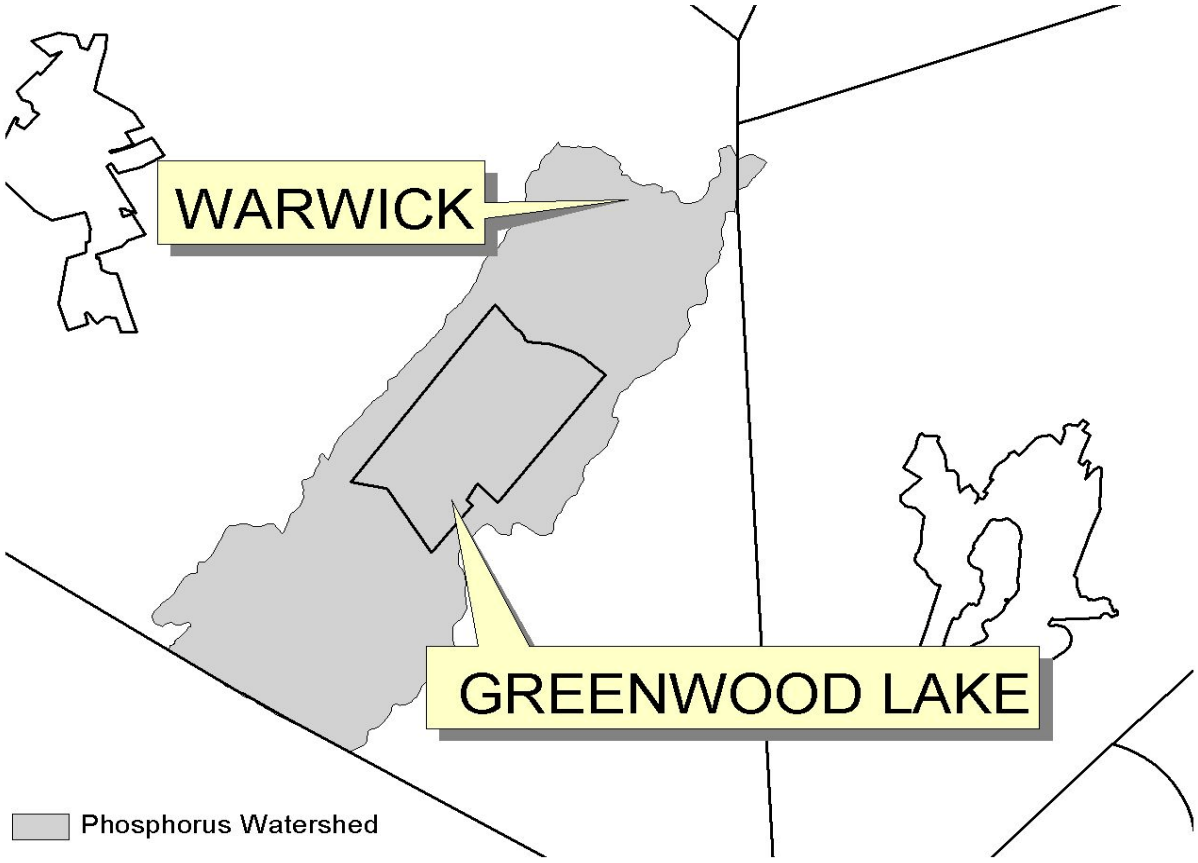


Figure 4 - Oscawana Lake Watershed

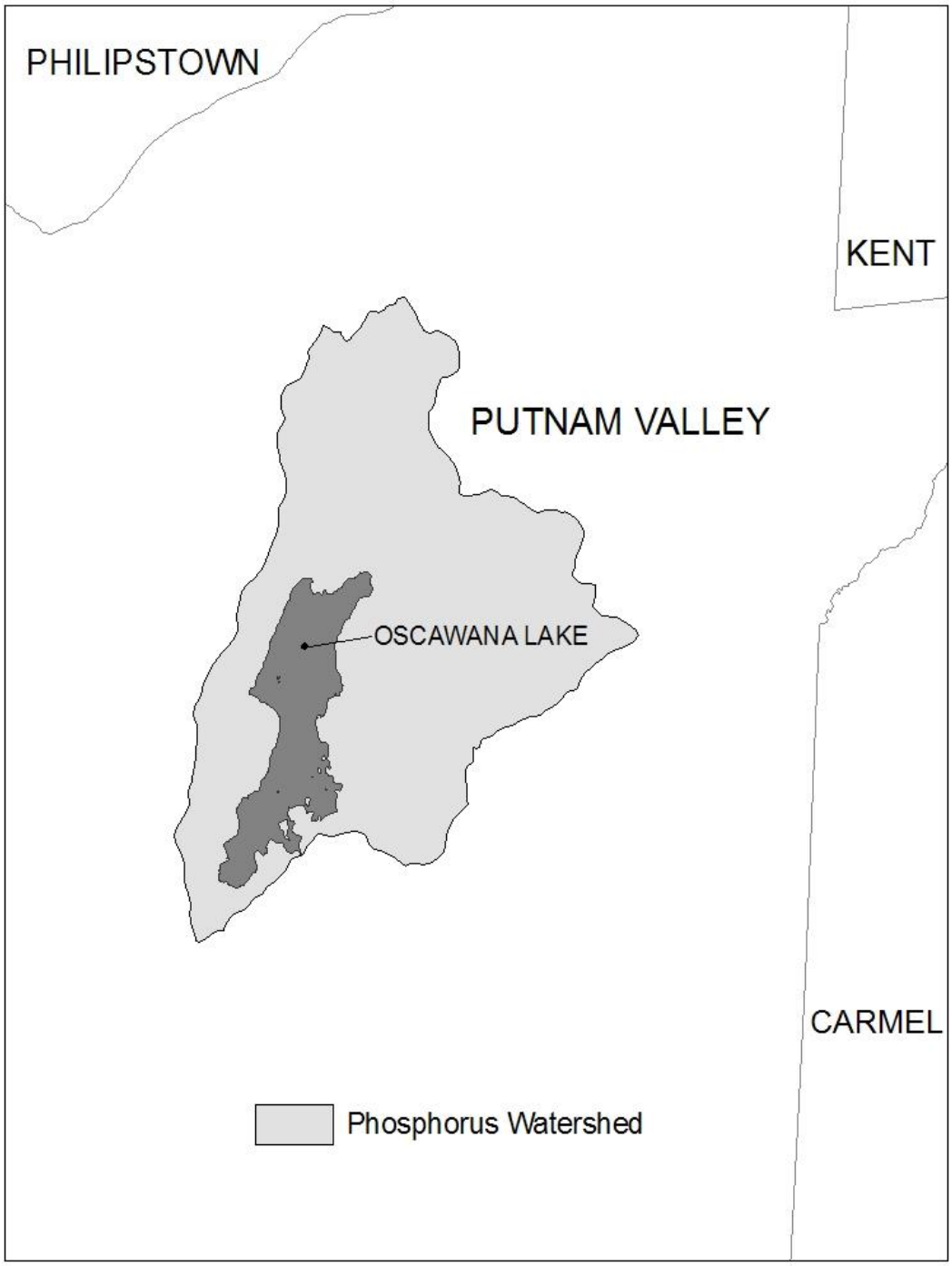
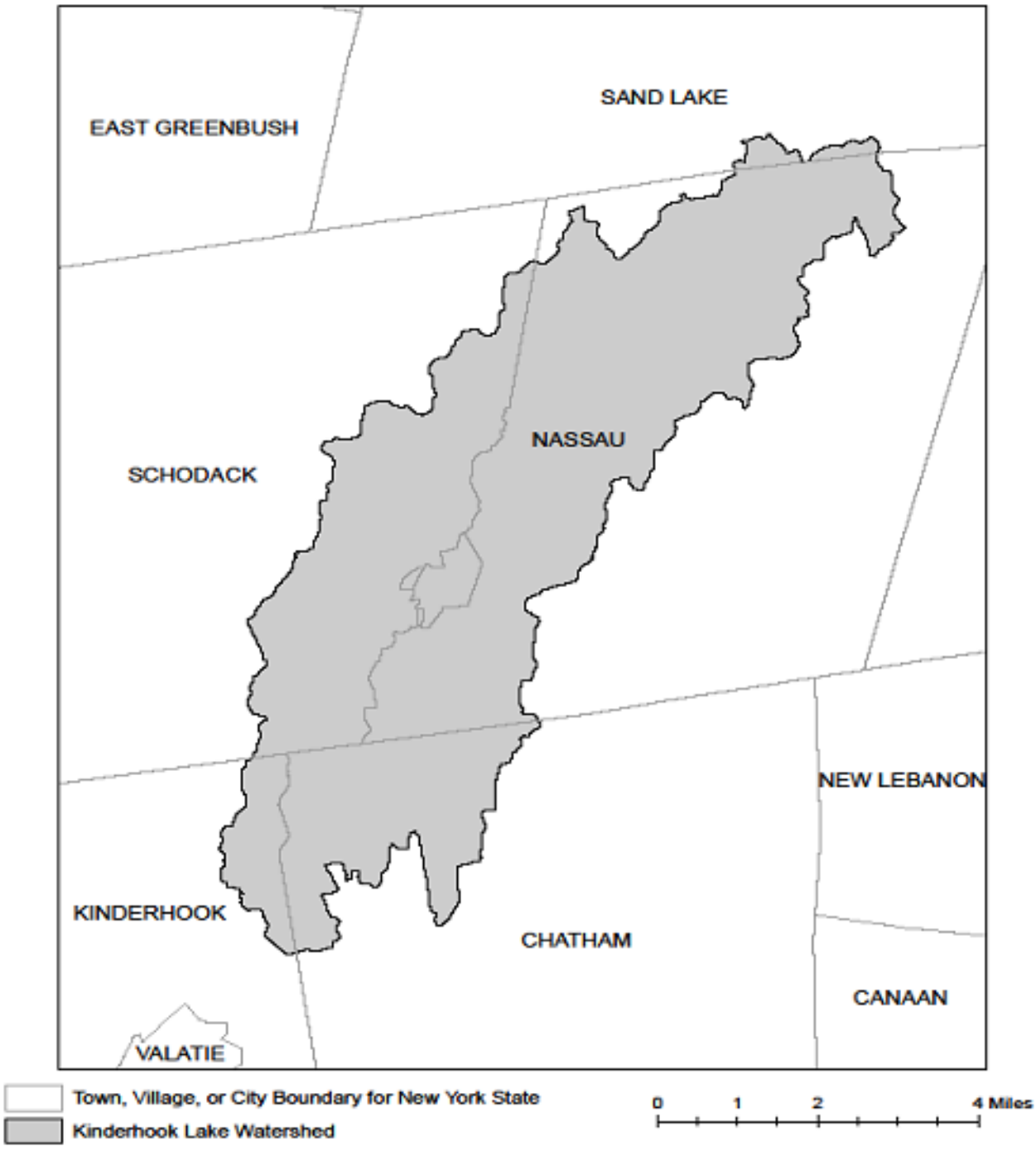


Figure 5 - Kinderhook Lake Watershed



APPENDIX D – Watersheds with Lower Disturbance Threshold

Watersheds where *owners or operators* of construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land must obtain coverage under this permit.

Entire New York City Watershed that is located east of the Hudson River **-** See Figure 1 in Appendix C

APPENDIX E – 303(d) Segments Impaired by Construction Related Pollutant(s)

List of 303(d) segments impaired by pollutants related to *construction activity* (e.g. silt, sediment or nutrients). The list was developed using "The Final New York State 2016 Section 303(d) List of Impaired Waters Requiring a TMDL/Other Strategy" dated November 2016. *Owners or operators* of single family home and single family residential subdivisions with 25% or less total impervious cover at total site build-out that involve soil disturbances of one or more acres of land, but less than 5 acres, and *directly discharge* to one of the listed segments below shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the New York State Stormwater Management Design Manual ("Design Manual"), dated January 2015.

COUNTY	WATERBODY	POLLUTANT
Albany	Ann Lee (Shakers) Pond, Stump Pond	Nutrients
Albany	Basic Creek Reservoir	Nutrients
Allegany	Amity Lake, Saunders Pond	Nutrients
Bronx	Long Island Sound, Bronx	Nutrients
Bronx	Van Cortlandt Lake	Nutrients
Broome	Fly Pond, Deer Lake, Sky Lake	Nutrients
Broome	Minor Tribs to Lower Susquehanna (north)	Nutrients
Broome	Whitney Point Lake/Reservoir	Nutrients
Cattaraugus	Allegheny River/Reservoir	Nutrients
Cattaraugus	Beaver (Alma) Lake	Nutrients
Cattaraugus	Case Lake	Nutrients
Cattaraugus	Linlyco/Club Pond	Nutrients
Cayuga	Duck Lake	Nutrients
Cayuga	Little Sodus Bay	Nutrients
Chautauqua	Bear Lake	Nutrients
Chautauqua	Chadakoin River and tribs	Nutrients
Chautauqua	Chautauqua Lake, North	Nutrients
Chautauqua	Chautauqua Lake, South	Nutrients
Chautauqua	Findley Lake	Nutrients
Chautauqua	Hulburt/Clymer Pond	Nutrients
Clinton	Great Chazy River, Lower, Main Stem	Silt/Sediment
Clinton	Lake Champlain, Main Lake, Middle	Nutrients
Clinton	Lake Champlain, Main Lake, North	Nutrients
Columbia	Kinderhook Lake	Nutrients
Columbia	Robinson Pond	Nutrients
Cortland	Dean Pond	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Dutchess	Fall Kill and tribs	Nutrients
Dutchess	Hillside Lake	Nutrients
Dutchess	Wappingers Lake	Nutrients
Dutchess	Wappingers Lake	Silt/Sediment
Erie	Beeman Creek and tribs	Nutrients
Erie	Ellicott Creek, Lower, and tribs	Silt/Sediment
Erie	Ellicott Creek, Lower, and tribs	Nutrients
Erie	Green Lake	Nutrients
Erie	Little Sister Creek, Lower, and tribs	Nutrients
Erie	Murder Creek, Lower, and tribs	Nutrients
Erie	Rush Creek and tribs	Nutrients
Erie	Scajaquada Creek, Lower, and tribs	Nutrients
Erie	Scajaquada Creek, Middle, and tribs	Nutrients
Erie	Scajaquada Creek, Upper, and tribs	Nutrients
Erie	South Branch Smoke Cr, Lower, and tribs	Silt/Sediment
Erie	South Branch Smoke Cr, Lower, and tribs	Nutrients
Essex	Lake Champlain, Main Lake, South	Nutrients
Essex	Lake Champlain, South Lake	Nutrients
Essex	Willsboro Bay	Nutrients
Genesee	Bigelow Creek and tribs	Nutrients
Genesee	Black Creek, Middle, and minor tribs	Nutrients
Genesee	Black Creek, Upper, and minor tribs	Nutrients
Genesee	Bowen Brook and tribs	Nutrients
Genesee	LeRoy Reservoir	Nutrients
Genesee	Oak Orchard Cr, Upper, and tribs	Nutrients
Genesee	Tonawanda Creek, Middle, Main Stem	Nutrients
Greene	Schoharie Reservoir	Silt/Sediment
Greene	Sleepy Hollow Lake	Silt/Sediment
Herkimer	Steele Creek tribs	Silt/Sediment
Herkimer	Steele Creek tribs	Nutrients
Jefferson	Moon Lake	Nutrients
Kings	Hendrix Creek	Nutrients
Kings	Prospect Park Lake	Nutrients
Lewis	Mill Creek/South Branch, and tribs	Nutrients
Livingston	Christie Creek and tribs	Nutrients
Livingston	Conesus Lake	Nutrients
Livingston	Mill Creek and minor tribs	Silt/Sediment
Monroe	Black Creek, Lower, and minor tribs	Nutrients
Monroe	Buck Pond	Nutrients
Monroe	Cranberry Pond	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Monroe	Lake Ontario Shoreline, Western	Nutrients
Monroe	Long Pond	Nutrients
Monroe	Mill Creek and tribs	Nutrients
Monroe	Mill Creek/Blue Pond Outlet and tribs	Nutrients
Monroe	Minor Tribs to Irondequoit Bay	Nutrients
Monroe	Rochester Embayment - East	Nutrients
Monroe	Rochester Embayment - West	Nutrients
Monroe	Shipbuilders Creek and tribs	Nutrients
Monroe	Thomas Creek/White Brook and tribs	Nutrients
Nassau	Beaver Lake	Nutrients
Nassau	Camaans Pond	Nutrients
Nassau	East Meadow Brook, Upper, and tribs	Silt/Sediment
Nassau	East Rockaway Channel	Nutrients
Nassau	Grant Park Pond	Nutrients
Nassau	Hempstead Bay	Nutrients
Nassau	Hempstead Lake	Nutrients
Nassau	Hewlett Bay	Nutrients
Nassau	Hog Island Channel	Nutrients
Nassau	Long Island Sound, Nassau County Waters	Nutrients
Nassau	Massapequa Creek and tribs	Nutrients
Nassau	Milburn/Parsonage Creeks, Upp, and tribs	Nutrients
Nassau	Reynolds Channel, west	Nutrients
Nassau	Tidal Tribs to Hempstead Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Silt/Sediment
Nassau	Tribs to Smith/Halls Ponds	Nutrients
Nassau	Woodmere Channel	Nutrients
New York	Harlem Meer	Nutrients
New York	The Lake in Central Park	Nutrients
Niagara	Bergholtz Creek and tribs	Nutrients
Niagara	Hyde Park Lake	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Oneida	Ballou, Nail Creeks and tribs	Nutrients
Onondaga	Harbor Brook, Lower, and tribs	Nutrients
Onondaga	Ley Creek and tribs	Nutrients
Onondaga	Minor Tribs to Onondaga Lake	Nutrients
Onondaga	Ninemile Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Middle, and tribs	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Onondaga	Onondaga Lake, northern end	Nutrients
Onondaga	Onondaga Lake, southern end	Nutrients
Ontario	Great Brook and minor tribs	Silt/Sediment
Ontario	Great Brook and minor tribs	Nutrients
Ontario	Hemlock Lake Outlet and minor tribs	Nutrients
Ontario	Honeoye Lake	Nutrients
Orange	Greenwood Lake	Nutrients
Orange	Monhagen Brook and tribs	Nutrients
Orange	Orange Lake	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Oswego	Lake Neatahwanta	Nutrients
Oswego	Pleasant Lake	Nutrients
Putnam	Bog Brook Reservoir	Nutrients
Putnam	Boyd Corners Reservoir	Nutrients
Putnam	Croton Falls Reservoir	Nutrients
Putnam	Diverting Reservoir	Nutrients
Putnam	East Branch Reservoir	Nutrients
Putnam	Lake Carmel	Nutrients
Putnam	Middle Branch Reservoir	Nutrients
Putnam	Oscawana Lake	Nutrients
Putnam	Palmer Lake	Nutrients
Putnam	West Branch Reservoir	Nutrients
Queens	Bergen Basin	Nutrients
Queens	Flushing Creek/Bay	Nutrients
Queens	Jamaica Bay, Eastern, and tribs (Queens)	Nutrients
Queens	Kissena Lake	Nutrients
Queens	Meadow Lake	Nutrients
Queens	Willow Lake	Nutrients
Rensselaer	Nassau Lake	Nutrients
Rensselaer	Snyders Lake	Nutrients
Richmond	Grasmere Lake/Bradys Pond	Nutrients
Rockland	Congers Lake, Swartout Lake	Nutrients
Rockland	Rockland Lake	Nutrients
Saratoga	Ballston Lake	Nutrients
Saratoga	Dwaas Kill and tribs	Silt/Sediment
Saratoga	Dwaas Kill and tribs	Nutrients
Saratoga	Lake Lonely	Nutrients
Saratoga	Round Lake	Nutrients
Saratoga	Tribs to Lake Lonely	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Schenectady	Collins Lake	Nutrients
Schenectady	Duane Lake	Nutrients
Schenectady	Mariaville Lake	Nutrients
Schoharie	Engleville Pond	Nutrients
Schoharie	Summit Lake	Nutrients
Seneca	Reeder Creek and tribs	Nutrients
St.Lawrence	Black Lake Outlet/Black Lake	Nutrients
St.Lawrence	Fish Creek and minor tribs	Nutrients
Steuben	Smith Pond	Nutrients
Suffolk	Agawam Lake	Nutrients
Suffolk	Big/Little Fresh Ponds	Nutrients
Suffolk	Canaan Lake	Silt/Sediment
Suffolk	Canaan Lake	Nutrients
Suffolk	Flanders Bay, West/Lower Sawmill Creek	Nutrients
Suffolk	Fresh Pond	Nutrients
Suffolk	Great South Bay, East	Nutrients
Suffolk	Great South Bay, Middle	Nutrients
Suffolk	Great South Bay, West	Nutrients
Suffolk	Lake Ronkonkoma	Nutrients
Suffolk	Long Island Sound, Suffolk County, West	Nutrients
Suffolk	Mattituck (Marratooka) Pond	Nutrients
Suffolk	Meetinghouse/Terrys Creeks and tribs	Nutrients
Suffolk	Mill and Seven Ponds	Nutrients
Suffolk	Millers Pond	Nutrients
Suffolk	Moriches Bay, East	Nutrients
Suffolk	Moriches Bay, West	Nutrients
Suffolk	Peconic River, Lower, and tidal tribs	Nutrients
Suffolk	Quantuck Bay	Nutrients
Suffolk	Shinnecock Bay and Inlet	Nutrients
Suffolk	Tidal tribs to West Moriches Bay	Nutrients
Sullivan	Bodine, Montgomery Lakes	Nutrients
Sullivan	Davies Lake	Nutrients
Sullivan	Evens Lake	Nutrients
Sullivan	Pleasure Lake	Nutrients
Tompkins	Cayuga Lake, Southern End	Nutrients
Tompkins	Cayuga Lake, Southern End	Silt/Sediment
Tompkins	Owasco Inlet, Upper, and tribs	Nutrients
Ulster	Ashokan Reservoir	Silt/Sediment
Ulster	Esopus Creek, Upper, and minor tribs	Silt/Sediment
Warren	Hague Brook and tribs	Silt/Sediment

303(d) Segments Impaired by Construction Related Pollutant(s)

Warren	Huddle/Finkle Brooks and tribs	Silt/Sediment
Warren	Indian Brook and tribs	Silt/Sediment
Warren	Lake George	Silt/Sediment
Warren	Tribs to L.George, Village of L George	Silt/Sediment
Washington	Cossayuna Lake	Nutrients
Washington	Lake Champlain, South Bay	Nutrients
Washington	Tribs to L.George, East Shore	Silt/Sediment
Washington	Wood Cr/Champlain Canal and minor tribs	Nutrients
Wayne	Port Bay	Nutrients
Westchester	Amawalk Reservoir	Nutrients
Westchester	Blind Brook, Upper, and tribs	Silt/Sediment
Westchester	Cross River Reservoir	Nutrients
Westchester	Lake Katonah	Nutrients
Westchester	Lake Lincolndale	Nutrients
Westchester	Lake Meahagh	Nutrients
Westchester	Lake Mohegan	Nutrients
Westchester	Lake Shenorock	Nutrients
Westchester	Long Island Sound, Westchester (East)	Nutrients
Westchester	Mamaroneck River, Lower	Silt/Sediment
Westchester	Mamaroneck River, Upper, and minor tribs	Silt/Sediment
Westchester	Muscoot/Upper New Croton Reservoir	Nutrients
Westchester	New Croton Reservoir	Nutrients
Westchester	Peach Lake	Nutrients
Westchester	Reservoir No.1 (Lake Isle)	Nutrients
Westchester	Saw Mill River, Lower, and tribs	Nutrients
Westchester	Saw Mill River, Middle, and tribs	Nutrients
Westchester	Sheldrake River and tribs	Silt/Sediment
Westchester	Sheldrake River and tribs	Nutrients
Westchester	Silver Lake	Nutrients
Westchester	Teatown Lake	Nutrients
Westchester	Titicus Reservoir	Nutrients
Westchester	Truesdale Lake	Nutrients
Westchester	Wallace Pond	Nutrients
Wyoming	Java Lake	Nutrients
Wyoming	Silver Lake	Nutrients

APPENDIX F – List of NYS DEC Regional Offices

Region	Covering the following counties:	DIVISION OF ENVIRONMENTAL PERMITS (DEP) Permit Administrators	DIVISION OF WATER (DOW) Water (SPDES) Program
1	Nassau and Suffolk	50 Circle Road Stony Brook, NY 11790 Tel. (631) 444-0365	50 Circle Road Stony Brook, NY 11790-3409 Tel. (631) 444-0405
2	Bronx, Kings, New York, Queens and Richmond	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4997	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4933
3	Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster and Westchester	21 South Putt Corners Road New Paltz, NY 12561-1696 Tel. (845) 256-3059	100 Hillside Avenue, Suite 1w White Plains, NY 10603 Tel. (914) 428 - 2505
4	Albany, Columbia, Delaware, Greene, Montgomery, Otsego, Rensselaer, Schenectady and Schoharie	1150 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2069	1130 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2045
5	Clinton, Essex, Franklin, Fulton, Hamilton, Saratoga, Warren and Washington	1115 State Route 86, Po Box 296 Ray Brook, NY 12977-0296 Tel. (518) 897-1234	232 Golf Course Road Warrensburg, NY 12885-1172 Tel. (518) 623-1200
6	HERKIMER, JEFFERSON, LEWIS, ONEIDA AND ST. LAWRENCE	STATE OFFICE BUILDING 317 WASHINGTON STREET WATERTOWN, NY 13601-3787 TEL. (315) 785-2245	STATE OFFICE BUILDING 207 GENESEE STREET UTICA, NY 13501-2885 TEL. (315) 793-2554
7	BROOME, CAYUGA, CHENANGO, CORTLAND, MADISON, ONONDAGA, OSWEGO, TIOGA AND TOMPKINS	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7438	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7500
8	CHEMUNG, GENESEE, LIVINGSTON, MONROE, ONTARIO, ORLEANS, SCHUYLER, SENECA, STEUBEN, WAYNE AND YATES	6274 EAST AVON-LIMA ROADAVON, NY 14414-9519 TEL. (585) 226-2466	6274 EAST AVON-LIMA RD. AVON, NY 14414-9519 TEL. (585) 226-2466
9	ALLEGANY, CATTARAUGUS, CHAUTAUQUA, ERIE, NIAGARA AND WYOMING	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7165	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7070

0644089821

NOTICE OF INTENT

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

NYR ☐☐☐☐☐☐
(for DEC use only)

Stormwater Discharges Associated with Construction Activity Under State Pollutant Discharge Elimination System (SPDES) General Permit # GP-0-20-001

All sections must be completed unless otherwise noted. Failure to complete all items may result in this form being returned to you, thereby delaying your coverage under this General Permit. Applicants must read and understand the conditions of the permit and prepare a Stormwater Pollution Prevention Plan prior to submitting this NOI. Applicants are responsible for identifying and obtaining other DEC permits that may be required.

-IMPORTANT-
RETURN THIS FORM TO THE ADDRESS ABOVE

OWNER/OPERATOR MUST SIGN FORM

Owner/Operator Information

Owner/Operator (Company Name/Private Owner Name/Municipality Name)

Owner/Operator Contact Person Last Name (NOT CONSULTANT)

Owner/Operator Contact Person First Name

Owner/Operator Mailing Address

City

State ☐☐ Zip ☐☐☐☐☐ - ☐☐☐☐

Phone (Owner/Operator) ☐☐☐ - ☐☐☐ - ☐☐☐☐

Fax (Owner/Operator) ☐☐☐ - ☐☐☐ - ☐☐☐☐

Email (Owner/Operator)

FED TAX ID ☐☐ - ☐☐☐☐☐☐☐ (not required for individuals)

Project Site Information

Project/Site Name

Street Address (NOT P.O. BOX)

Side of Street
○ **North** ○ **South** ○ **East** ○ **West**

City/Town/Village (THAT ISSUES BUILDING PERMIT)

State N Y Zip - County DEC Region

Name of Nearest Cross Street

Distance to Nearest Cross Street (Feet)

Project In Relation to Cross Street
○ **North** ○ **South** ○ **East** ○ **West**

Tax Map Numbers
Section-Block-Parcel

Tax Map Numbers

1. Provide the Geographic Coordinates for the project site. To do this, go to the NYSDEC Stormwater Interactive Map on the DEC website at:

https://gisservices.dec.ny.gov/gis/stormwater/

Zoom into your Project Location such that you can accurately click on the centroid of your site. Once you have located the centroid of your project site, go to the bottom right hand corner of the map for the X, Y coordinates. Enter the coordinates into the boxes below. For problems with the interactive map use the help function.

X Coordinates (Easting)
-7
Ex. -73.749

Y Coordinates (Northing)
4
Ex. 42.652

2. What is the nature of this construction project?

○ **New Construction**

○ **Redevelopment with increase in impervious area**

○ **Redevelopment with no increase in impervious area**

3. Select the predominant land use for both pre and post development conditions.
SELECT ONLY ONE CHOICE FOR EACH

Pre-Development Existing Land Use

- ○ FOREST
- ○ PASTURE/OPEN LAND
- ○ CULTIVATED LAND
- ○ SINGLE FAMILY HOME
- ○ SINGLE FAMILY SUBDIVISION
- ○ TOWN HOME RESIDENTIAL
- ○ MULTIFAMILY RESIDENTIAL
- ○ INSTITUTIONAL/SCHOOL
- ○ INDUSTRIAL
- ○ COMMERCIAL
- ○ ROAD/HIGHWAY
- ○ RECREATIONAL/SPORTS FIELD
- ○ BIKE PATH/TRAIL
- ○ LINEAR UTILITY
- ○ PARKING LOT
- ○ OTHER

Post-Development Future Land Use

- ○ SINGLE FAMILY HOME
- ○ SINGLE FAMILY SUBDIVISION — Number of Lots
- ○ TOWN HOME RESIDENTIAL
- ○ MULTIFAMILY RESIDENTIAL
- ○ INSTITUTIONAL/SCHOOL
- ○ INDUSTRIAL
- ○ COMMERCIAL
- ○ MUNICIPAL
- ○ ROAD/HIGHWAY
- ○ RECREATIONAL/SPORTS FIELD
- ○ BIKE PATH/TRAIL
- ○ LINEAR UTILITY (water, sewer, gas, etc.)
- ○ PARKING LOT
- ○ CLEARING/GRADING ONLY
- ○ DEMOLITION, NO REDEVELOPMENT
- ○ WELL DRILLING ACTIVITY *(Oil, Gas, etc.)
- ○ OTHER

***Note**: for gas well drilling, non-high volume hydraulic fractured wells only

4. In accordance with the larger common plan of development or sale, enter the total project site area; the total area to be disturbed; existing impervious area to be disturbed (for redevelopment activities); and the future impervious area constructed within the disturbed area. (Round to the nearest tenth of an acre.)

Total Site Area	**Total Area To Be Disturbed**	**Existing Impervious Area To Be Disturbed**	**Future Impervious Area Within Disturbed Area**
.	.	.	.

5. Do you plan to disturb more than 5 acres of soil at any one time? ○ **Yes** ○ **No**

6. Indicate the percentage of each Hydrologic Soil Group(HSG) at the site.

A	**B**	**C**	**D**
%	%	%	%

7. Is this a phased project? ○ **Yes** ○ **No**

8. Enter the planned start and end dates of the disturbance activities.

Start Date / / - **End Date** / /

9. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.

Name

9a. Type of waterbody identified in Question 9?

- ○ Wetland / State Jurisdiction On Site (Answer 9b)
- ○ Wetland / State Jurisdiction Off Site
- ○ Wetland / Federal Jurisdiction On Site (Answer 9b)
- ○ Wetland / Federal Jurisdiction Off Site
- ○ Stream / Creek On Site
- ○ Stream / Creek Off Site
- ○ River On Site
- ○ River Off Site
- ○ Lake On Site
- ○ Lake Off Site
- ○ Other Type On Site
- ○ Other Type Off Site

9b. How was the wetland identified?

- ○ Regulatory Map
- ○ Delineated by Consultant
- ○ Delineated by Army Corps of Engineers
- ○ Other (identify)

10. Has the surface waterbody(ies) in question 9 been identified as a 303(d) segment in Appendix E of GP-0-20-001? ○ **Yes** ○ **No**

11. Is this project located in one of the Watersheds identified in Appendix C of GP-0-20-001? ○ **Yes** ○ **No**

12. Is the project located in one of the watershed areas associated with AA and AA-S classified waters? ○ **Yes** ○ **No**
If no, skip question 13.

13. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey? ○ **Yes** ○ **No**
If Yes, what is the acreage to be disturbed?

.

14. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area? ○ **Yes** ○ **No**

15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)? ○ **Yes** ○ **No** ○ **Unknown**

16. What is the name of the municipality/entity that owns the separate storm sewer system?

17. Does any runoff from the site enter a sewer classified as a Combined Sewer? ○ **Yes** ○ **No** ○ **Unknown**

18. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law? ○ **Yes** ○ **No**

19. Is this property owned by a state authority, state agency, federal government or local government? ○ **Yes** ○ **No**

20. Is this a remediation project being done under a Department approved work plan? (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.) ○ **Yes** ○ **No**

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)? ○ **Yes** ○ **No**

22. Does this construction activity require the development of a SWPPP that includes the post-construction stormwater management practice component (i.e. Runoff Reduction, Water Quality and Quantity Control practices/techniques)? ○ **Yes** ○ **No**
If No, skip questions 23 and 27-39.

23. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual? ○ **Yes** ○ **No**

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:

- ○ **Professional Engineer (P.E.)**
- ○ **Soil and Water Conservation District (SWCD)**
- ○ **Registered Landscape Architect (R.L.A)**
- ○ **Certified Professional in Erosion and Sediment Control (CPESC)**
- ○ **Owner/Operator**
- ○ **Other**

SWPPP Preparer

Contact Name (Last, Space, First)

Mailing Address

City

State Zip -

Phone - -

Fax - -

Email

SWPPP Preparer Certification

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-20-001. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

First Name **MI**

Last Name

Signature

Date / /

25. Has a construction sequence schedule for the planned management practices been prepared? ○ Yes ○ No

26. Select **all** of the erosion and sediment control practices that will be employed on the project site:

Temporary Structural

- ○ Check Dams
- ○ Construction Road Stabilization
- ○ Dust Control
- ○ Earth Dike
- ○ Level Spreader
- ○ Perimeter Dike/Swale
- ○ Pipe Slope Drain
- ○ Portable Sediment Tank
- ○ Rock Dam
- ○ Sediment Basin
- ○ Sediment Traps
- ○ Silt Fence
- ○ Stabilized Construction Entrance
- ○ Storm Drain Inlet Protection
- ○ Straw/Hay Bale Dike
- ○ Temporary Access Waterway Crossing
- ○ Temporary Stormdrain Diversion
- ○ Temporary Swale
- ○ Turbidity Curtain
- ○ Water bars

Biotechnical

- ○ Brush Matting
- ○ Wattling

Vegetative Measures

- ○ Brush Matting
- ○ Dune Stabilization
- ○ Grassed Waterway
- ○ Mulching
- ○ Protecting Vegetation
- ○ Recreation Area Improvement
- ○ Seeding
- ○ Sodding
- ○ Straw/Hay Bale Dike
- ○ Streambank Protection
- ○ Temporary Swale
- ○ Topsoiling
- ○ Vegetating Waterways

Permanent Structural

- ○ Debris Basin
- ○ Diversion
- ○ Grade Stabilization Structure
- ○ Land Grading
- ○ Lined Waterway (Rock)
- ○ Paved Channel (Concrete)
- ○ Paved Flume
- ○ Retaining Wall
- ○ Riprap Slope Protection
- ○ Rock Outlet Protection
- ○ Streambank Protection

Other

Post-construction Stormwater Management Practice (SMP) Requirements

Important: Completion of Questions 27-39 is not required if response to Question 22 is No.

27. Identify all site planning practices that were used to prepare the final site plan/layout for the project.

- ○ **Preservation of Undisturbed Areas**
- ○ **Preservation of Buffers**
- ○ **Reduction of Clearing and Grading**
- ○ **Locating Development in Less Sensitive Areas**
- ○ **Roadway Reduction**
- ○ **Sidewalk Reduction**
- ○ **Driveway Reduction**
- ○ **Cul-de-sac Reduction**
- ○ **Building Footprint Reduction**
- ○ **Parking Reduction**

27a. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6("Soil Restoration") of the Design Manual (2010 version).

- ○ All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).
- ○ Compacted areas were considered as impervious cover when calculating the **WQv Required**, and the compacted areas were assigned a post-construction Hydrologic Soil Group (HSG) designation that is one level less permeable than existing conditions for the hydrology analysis.

28. Provide the total Water Quality Volume (WQv) required for this project (based on final site plan/layout).

Total WQv Required

			.				**acre-feet**

29. Identify the RR techniques (Area Reduction), RR techniques(Volume Reduction) and Standard SMPs with RRv Capacity in Table 1 (See Page 9) that were used to reduce the Total WQv Required(#28).

Also, provide in Table 1 the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

Note: Redevelopment projects shall use Tables 1 and 2 to identify the SMPs used to treat and/or reduce the WQv required. If runoff reduction techniques will not be used to reduce the required WQv, skip to question 33a after identifying the SMPs.

Table 1 - Runoff Reduction (RR) Techniques and Standard Stormwater Management Practices (SMPs)

	Total Contributing Area (acres)		Total Contributing Impervious Area(acres)
RR Techniques (Area Reduction)			
○ Conservation of Natural Areas (RR-1)	___.___	and/or	___.___
○ Sheetflow to Riparian Buffers/Filters Strips (RR-2)	___.___	and/or	___.___
○ Tree Planting/Tree Pit (RR-3)	___.___	and/or	___.___
○ Disconnection of Rooftop Runoff (RR-4)	___.___	and/or	___.___
RR Techniques (Volume Reduction)			
○ Vegetated Swale (RR-5)			___.___
○ Rain Garden (RR-6)			___.___
○ Stormwater Planter (RR-7)			___.___
○ Rain Barrel/Cistern (RR-8)			___.___
○ Porous Pavement (RR-9)			___.___
○ Green Roof (RR-10)			___.___
Standard SMPs with RRv Capacity			
○ Infiltration Trench (I-1)			___.___
○ Infiltration Basin (I-2)			___.___
○ Dry Well (I-3)			___.___
○ Underground Infiltration System (I-4)			___.___
○ Bioretention (F-5)			___.___
○ Dry Swale (O-1)			___.___
Standard SMPs			
○ Micropool Extended Detention (P-1)			___.___
○ Wet Pond (P-2)			___.___
○ Wet Extended Detention (P-3)			___.___
○ Multiple Pond System (P-4)			___.___
○ Pocket Pond (P-5)			___.___
○ Surface Sand Filter (F-1)			___.___
○ Underground Sand Filter (F-2)			___.___
○ Perimeter Sand Filter (F-3)			___.___
○ Organic Filter (F-4)			___.___
○ Shallow Wetland (W-1)			___.___
○ Extended Detention Wetland (W-2)			___.___
○ Pond/Wetland System (W-3)			___.___
○ Pocket Wetland (W-4)			___.___
○ Wet Swale (O-2)			___.___

Table 2 - Alternative SMPs (DO NOT INCLUDE PRACTICES BEING USED FOR PRETREATMENT ONLY)

Alternative SMP	Total Contributing Impervious Area(acres)
○ **Hydrodynamic**	
○ **Wet Vault**	
○ **Media Filter**	
○ **Other**	

Provide the name and manufacturer of the Alternative SMPs (i.e. proprietary practice(s)) being used for WQv treatment.

Name

Manufacturer

Note: Redevelopment projects which do not use RR techniques, shall use questions 28, 29, 33 and 33a to provide SMPs used, total WQv required and total WQv provided for the project.

30. Indicate the Total RRv provided by the RR techniques (Area/Volume Reduction) and Standard SMPs with RRv capacity identified in question 29.

Total RRv provided

. **acre-feet**

31. Is the Total RRv provided (#30) greater than or equal to the total WQv required (#28).

○ **Yes** ○ **No**

If Yes, go to question 36.
If No, go to question 32.

32. Provide the Minimum RRv required based on HSG.
[Minimum RRv Required = (P)(0.95)(Ai)/12, Ai=(S)(Aic)]

Minimum RRv Required

. **acre-feet**

32a. Is the Total RRv provided (#30) greater than or equal to the Minimum RRv Required (#32)?

○ **Yes** ○ **No**

If Yes, go to question 33.
Note: Use the space provided in question #39 to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). A detailed evaluation of the specific site limitations and justification for not reducing 100% of the WQv required (#28) must also be included in the SWPPP.
If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

33. Identify the Standard SMPs in Table 1 and, if applicable, the Alternative SMPs in Table 2 that were used to treat the remaining total WQv(=Total WQv Required in 28 - Total RRv Provided in 30).

Also, provide in Table 1 and 2 the total impervious area that contributes runoff to each practice selected.

Note: Use Tables 1 and 2 to identify the SMPs used on Redevelopment projects.

33a. Indicate the Total WQv provided (i.e. WQv treated) by the SMPs identified in question #33 and Standard SMPs with RRv Capacity identified in question 29.

WQv Provided

			.			
			.			**acre-feet**

Note: For the standard SMPs with RRv capacity, the WQv provided by each practice = the WQv calculated using the contributing drainage area to the practice - RRv provided by the practice. (See Table 3.5 in Design Manual)

34. Provide the sum of the Total RRv provided (#30) and the WQv provided (#33a).

			.			
			.			

35. Is the sum of the RRv provided (#30) and the WQv provided (#33a) greater than or equal to the total WQv required (#28)? ○ **Yes** ○ **No**

If Yes, go to question 36.
If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

36. Provide the total Channel Protection Storage Volume (CPv) required and provided or select waiver (36a), if applicable.

CPv Required

			.			
			.			**acre-feet**

CPv Provided

			.			
			.			**acre-feet**

36a. The need to provide channel protection has been waived because:

○ Site discharges directly to tidal waters or a fifth order or larger stream.

○ Reduction of the total CPv is achieved on site through runoff reduction techniques or infiltration systems.

37. Provide the Overbank Flood (Qp) and Extreme Flood (Qf) control criteria or select waiver (37a), if applicable.

Total Overbank Flood Control Criteria (Qp)

Pre-Development

			.			
			.			**CFS**

Post-development

			.			
			.			**CFS**

Total Extreme Flood Control Criteria (Qf)

Pre-Development

			.			
			.			**CFS**

Post-development

			.			
			.			**CFS**

37a. The need to meet the Qp and Qf criteria has been waived because:

- ○ Site discharges directly to tidal waters or a fifth order or larger stream.
- ○ Downstream analysis reveals that the Qp and Qf controls are not required

38. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed? ○ **Yes** ○ **No**

If Yes, Identify the entity responsible for the long term Operation and Maintenance

39. Use this space to summarize the specific site limitations and justification for not reducing 100% of WQv required(#28). (See question 32a) This space can also be used for other pertinent project information.

40. Identify other DEC permits, existing and new, that are required for this project/facility.

- ○ Air Pollution Control
- ○ Coastal Erosion
- ○ Hazardous Waste
- ○ Long Island Wells
- ○ Mined Land Reclamation
- ○ Solid Waste
- ○ Navigable Waters Protection / Article 15
- ○ Water Quality Certificate
- ○ Dam Safety
- ○ Water Supply
- ○ Freshwater Wetlands/Article 24
- ○ Tidal Wetlands
- ○ Wild, Scenic and Recreational Rivers
- ○ Stream Bed or Bank Protection / Article 15
- ○ Endangered or Threatened Species(Incidental Take Permit)
- ○ Individual SPDES
- ○ SPDES Multi-Sector GP [N][Y][R][ ][ ][ ][ ][ ][ ]
- ○ Other [ ]
- ○ None

41. Does this project require a US Army Corps of Engineers Wetland Permit? ○ **Yes** ○ **No**
If Yes, Indicate Size of Impact. [ ][ ][ ][ ][ ].[ ]

42. Is this project subject to the requirements of a regulated, traditional land use control MS4? ○ **Yes** ○ **No**
(If No, skip question 43)

43. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI? ○ **Yes** ○ **No**

44. If this NOI is being submitted for the purpose of continuing or transferring coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned. [N][Y][R][ ][ ][ ][ ][ ][ ]

Owner/Operator Certification

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) business days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Print First Name **MI**

Print Last Name

Owner/Operator Signature

Date / /

APPENDIX B-2

EROSION AND SEDIMENT CONTROLS

SECTION 5
SEDIMENT CONTROL

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SEDIMENT CONTROL

Scope and Discussion

Sediment control is the second component in the site management plan after erosion control. Primary emphasis should be placed on erosion control first which combines runoff control and soil stabilization to minimize soil erosion. Sediment control practices are then integrated into the plan to further reduce the migration of eroded soil both on and off site.

The majority of sediment control practices utilize settling to capture sediment within a storage volume where it can be contained and managed. These practices include sediment basins, sediment traps and dikes, rock dams, water structures, silt fence, turbidity curtains, straw bale dikes, and portable settling tanks. There is also a group of practices that rely on both filtering and settling to capture sediment. These practices include storm drain inlet protection structures, geotextile filter bags, compost tubes, and buffer filter strips. In addition, the use of chemical polymer substances is a process that may, with NYSDEC approval, be used on sites where disturbed clay soils remain in suspension.

It is important that these sediment control practices be designed, constructed and installed in accordance with the criteria contained in these standards. For these practices to effectively remove sediment from turbid water, the volumes, dimensions, and appropriate attributes of these individual practices must be maintained. This includes the calculated relationships of dimensions to respective drainage areas, length to width ratios, and frequency of inspection and maintenance.

Note: Performing activities within or adjacent to wetlands, streams and waterbodies may require permits from the New York State Department of Environmental Conservation (NYSDEC) pursuant to Article 15 (Protection of Waters), Article 24 (Freshwater Wetlands) and Article 25 (Tidal Wetlands) of the Environmental Conservation Law (ECL). Project owners should contact NYSDEC's Regional Division of Environmental Permits early in the site planning process to discuss the requirements for meeting permit issuance standards. Following the New York State Standards and Specifications for Erosion and Sediment Control may not ensure compliance with the above referenced sections of the ECL.

To assist with the success of these sediment control practices, apply the following concepts for the practice design and location:

1. Keep the clean water clean by diverting runoff from upslope areas away from disturbed areas.
2. Employ natural vegetative buffers or artificial mats to assist in sediment capture in sheet flow areas.
3. Control concentrated flow to minimize additional erosion that could overwhelm a practice.
4. Stabilize all sediment control systems as soon as they are installed so they do not contribute sediment to site runoff.
5. Remove all practices after use and stabilize the regraded areas immediately.

Sediment accumulated in the sediment control practices must be removed when the sediment has filled the designated storage volume for the practice. The material must be disposed of in a manner that stabilizes it on the construction site. These details, as well as the frequency of inspection, sequences of installation and removal, and an inspection checklist shall be included in the Stormwater Pollution Prevention Plan for the site.

Chemical Treatment

Precipitation of sediment is enhanced with the use of specific chemical flocculants that can be applied to a sediment basin in liquid, powder, or solid form. Flocculants include polyacrylimide, aluminum sulfate (alum), and polyaluminum chloride.

Polymer flocculation shall only be used for dispersive soil-water mixtures that do not respond to normal settling times when allowed to set in sediment traps and basins, i.e. less than 7 days. Controlled application takes place in a sediment basin or trap with anionic polyelectrolytes in the form of liquid, powder, or solid form, such as polyacrylimide, aluminum sulfate, chitosan lactate, or chitosan acetate. Cationic polyelectrolytes have a greater toxicity to fish and other aquatic organisms than anionic

polyelectrolytes because they bind to the gills of fish resulting in respiratory failure (Pitt 2003).

Chemical treatment shall not be substituted for proper planning, phasing, sequencing, and the design of appropriate erosion and sediment control practices.

No polymer application shall take place without written approval from NYSDEC.

Field tests must be conducted on the proposed site at the design basin locations with the tributary soils to establish polymer dosing rates and verify settling performance.

Treated water discharged from sediment basins with polymer treatment will be tested to determine that any residual polymer meets the standards set by NYSDEC. Polymer flocculation systems require daily inspection.

STANDARD AND SPECIFICATIONS FOR BUFFER FILTER STRIP

Land Slope (%)	Minimum Filter Strip Width (ft.)
≤10	50
20	60
30	85
40	105
50	125
60	145
70	165

Definition & Scope

A **temporary/permanent** well vegetated grassed area below a disturbed area that can be used to remove sediment from runoff prior to it reaching surface waters or other designated areas of concern, such as parking lots and road pavement.

Condition Where Practice Applies

This practice is effective when the flow is in the form of sheet flow and the vegetative cover is established prior to disturbance. Surface water must be protected from sediment-laden runoff until buffer filter strip vegetation is established, and then the proposed disturbance can be undertaken. This practice is effective when the flow is in the form of sheet flow (maximum of 150 feet).

Design Criteria

1. The vegetation should be a well established perennial grass. Wooded and brushy areas are not acceptable for purposes of sediment removal.

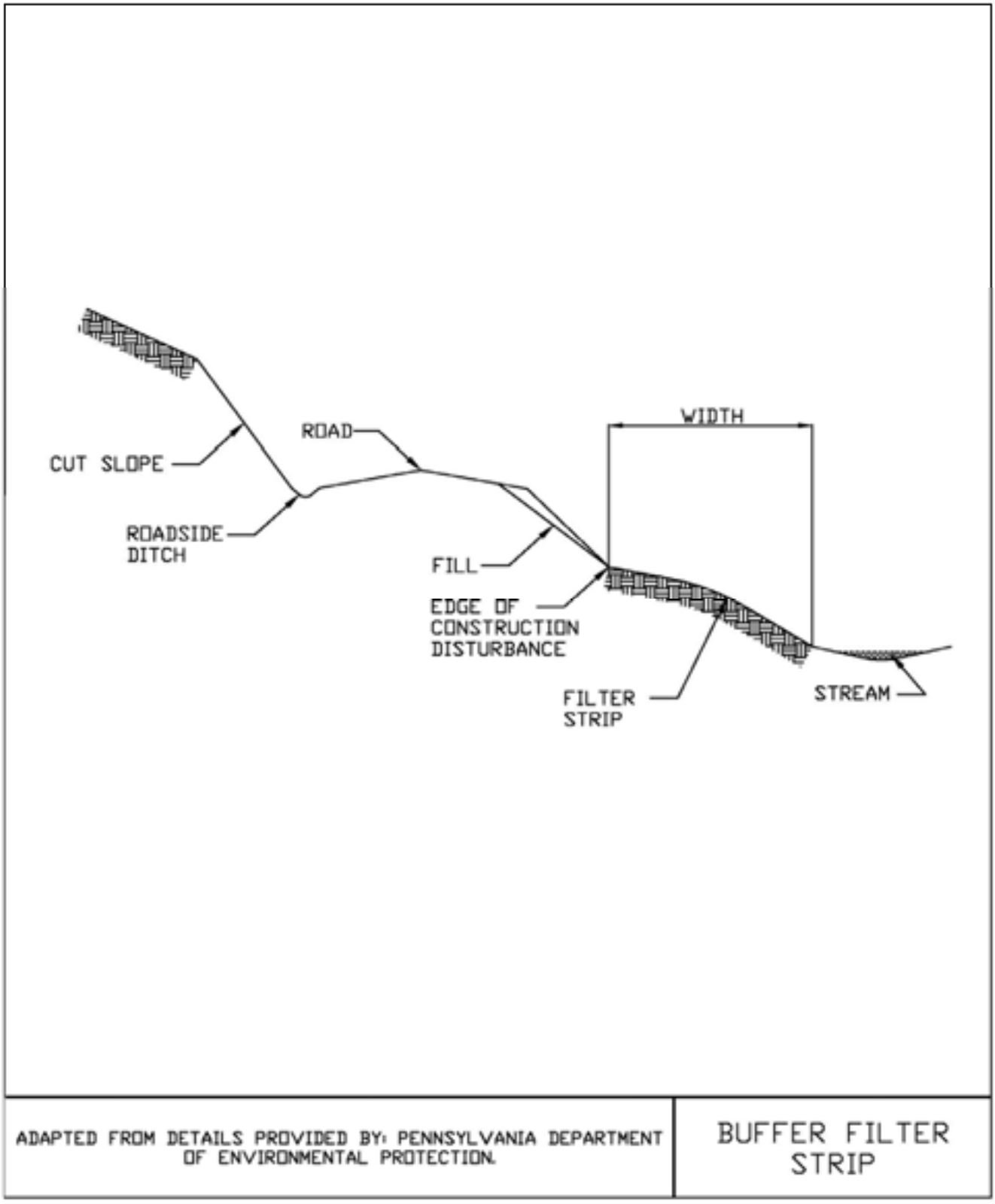
2. The minimum buffer filter strip width for stream protection shall be in accordance with the following table:

3. The minimum buffer filter strip width to protect paved areas during construction is 20 feet.

Maintenance

If at any time the width of the buffer filter strip has been reduced by sediment deposition to half its original width or concentrated flow has developed, suitable additional practices should be installed. The erosion and sediment control plan shall include these details.

Figure 5.1
Buffer Filter Strip



STANDARD AND SPECIFICATIONS FOR COFFERDAM STRUCTURES

Definition & Scope

A **temporary** barrier placed at a worksite to prevent water from flooding the work area so that construction can take place without discharging sediment into the water resource.

Condition Where Practice Applies

Temporary coffer dams are used to separate streams, rivers, lakes, and other sources of surface water from adjacent locations where soil disturbances are undertaken to complete construction. These barriers can be constructed of manufactured components such as geotextile/plastic tubes filled with water, portable dams formed by metal framing with a geo-membrane, or conventionally constructed earth and stone dike systems.

Design Criteria

The maximum height for this application is 10 feet. No construction activity shall commence in the area of the cofferdam until it is completed and stabilized.

Water Filled Structures

1. These structures shall be sized and installed according to the manufacturers recommendations.
2. Adequate freeboard must be provided to prevent flotation during high water events and periods of below freezing temperatures.
3. The foundation shall be prepared to provide full bottom contact prior to filling.
4. An interior dewatering system shall be designed within the work area to manage seepage.
5. The ends of the water structures shall be anchored on the stream banks or shorelines at an elevation at least above the top of the structure.

Structural Component Dams

1. These structures shall be sized and installed in accordance with the manufacturers recommendations.
2. The foundation area for the placement of the structural steel framing and the impervious fabric membrane shall be as directed by the manufacturer or by qualified personnel.
3. Dewatering the interior of the coffer dam will be done in a manner that does not disturb the foundation area of the structural frame.
4. A minimum of 2 feet of freeboard shall be provided above the expected high water elevation.

Earthen Coffer Dams

1. The earthen coffer dam shall be constructed of fill material that will preclude the transmission of water through the dam, or contain an impermeable core.
2. The minimum top width shall be 8 feet with 2:1 side slopes, and compacted in 9 inch lifts with a minimum of 4 passes of construction equipment.
3. The outside slope shall be covered with a 1 foot layer of rock riprap over a graded stone bedding or geotextile to prevent erosion of soil material into water. An alternative method is to cover the outside slope with an anchored plastic cover with a minimum thickness of 20 mil.
4. Interior work will be conducted in a manner that will not disturb or undermine the earthen coffer dam or its foundation.

Inspection and Maintenance

1. All cofferdams will be inspected daily to assure proper performance and stability as vibration from construction equipment can cause disturbance of the structures.
2. Particular attention should be given to the foundation support system at perimeter of structural component dams. Any undermined or settled areas shall be restored immediately.

3. Any holes, leaks, or torn areas in the geo-membranes or fabric shall be repaired immediately.

4. Any shifting, movement, or settling of the coffer dam shall be addressed immediately to protect workers in the construction area.

5. Inspect the interior dewatering system and ensure that the system is discharging clean water, or is being pumped to appropriate sediment control facility prior to returning to the water resource.

6. Repair or replace any loss of rock riprap or fill that may occur and assure the top of the coffer dam is level without any low spots due to settling.

7. Upon completion of the construction work, remove all excess material, accumulated sediment and debris from the work area, and remove the cofferdam in accordance with the site stabilization plan.

STANDARD AND SPECIFICATIONS FOR COMPOST FILTER SOCK

Definition & Scope

A **temporary** sediment control practice composed of a degradable geotextile mesh tube filled with compost filter media to filter sediment and other pollutants associated with construction activity to prevent their migration offsite.

Condition Where Practice Applies

Compost filter socks can be used in many construction site applications where erosion will occur in the form of sheet erosion and there is no concentration of water flowing to the sock. In areas with steep slopes and/or rocky terrain, soil conditions must be such that good continuous contact between the sock and the soil is maintained throughout its length. For use on impervious surfaces such as road pavement or parking areas, proper anchorage must be provided to prevent shifting of the sock or separation of the contact between the sock and the pavement. Compost filter socks are utilized both at the site perimeter as well as within the construction areas. These socks may be filled after placement by blowing compost into the tube pneumatically, or filled at a staging location and moved into its designed location.

Design Criteria

1. Compost filter socks will be placed on the contour with both terminal ends of the sock extended 8 feet upslope at a 45 degree angle to prevent bypass flow.

2. Diameters designed for use shall be 12" – 32" except that 8" diameter socks may be used for residential lots to control areas less than 0.25 acres.

3. The flat dimension of the sock shall be at least 1.5 times the nominal diameter.

4. The **Maximum Slope Length** (in feet) above a compost filter sock shall not exceed the following limits:

Dia. (in.)	Slope %						
	2	**5**	**10**	**20**	**25**	**33**	**50**
8	225*	200	100	50	20	—	—
12	250	225	125	65	50	40	25
18	275	250	150	70	55	45	30
24	350	275	200	130	100	60	35
32	450	325	275	150	120	75	50
* Length in feet							

5. The compost infill shall be well decomposed (matured at least 3 months), weed-free, organic matter. It shall be aerobically composted, possess no objectionable odors, and contain less than 1%, by dry weight, of man-made foreign matter. The physical parameters of the compost shall meet the standards listed in Table 5.2 - Compost Standards Table. **Note: All biosolids compost produced in New York State (or approved for importation) must meet NYS DEC's 6 NYCRR Part 360 (Solid Waste Management Facilities) requirements. The Part 360 requirements are equal to or more stringent than 40 CFR Part 503 which ensure safe standards for pathogen reduction and heavy metals content. When using compost filter socks adjacent to surface water, the compost should have a low nutrient value.**

6. The compost filter sock fabric material shall meet the

7. Compost filter socks shall be anchored in earth with 2" x 2" wooden stakes driven 12" into the soil on 10 foot centers on the centerline of the sock. On uneven terrain, effective ground contact can be enhanced by the placement of a fillet of filter media on the disturbed area side of the compost sock.

8. All specific construction details and material specifications shall appear on the erosion and sediment control constructions drawings when compost filter socks are included in the plan.

Maintenance

1. Traffic shall not be permitted to cross filter socks.

2. Accumulated sediment shall be removed when it reaches half the above ground height of the sock and disposed of in accordance with the plan.

3. Socks shall be inspected weekly and after each runoff event. Damaged socks shall be repaired in the manner required by the manufacturer or replaced within 24 hours of inspection notification.

4. Biodegradable filter socks shall be replaced after 6 months; photodegradable filter socks after 1 year. Polypropylene socks shall be replaced according to the manufacturer's recommendations.

5. Upon stabilization of the area contributory to the sock, stakes shall be removed. The sock may be left in place and vegetated or removed in accordance with the stabilization plan. For removal the mesh can be cut and the compost spread as an additional mulch to act as a soil supplement.

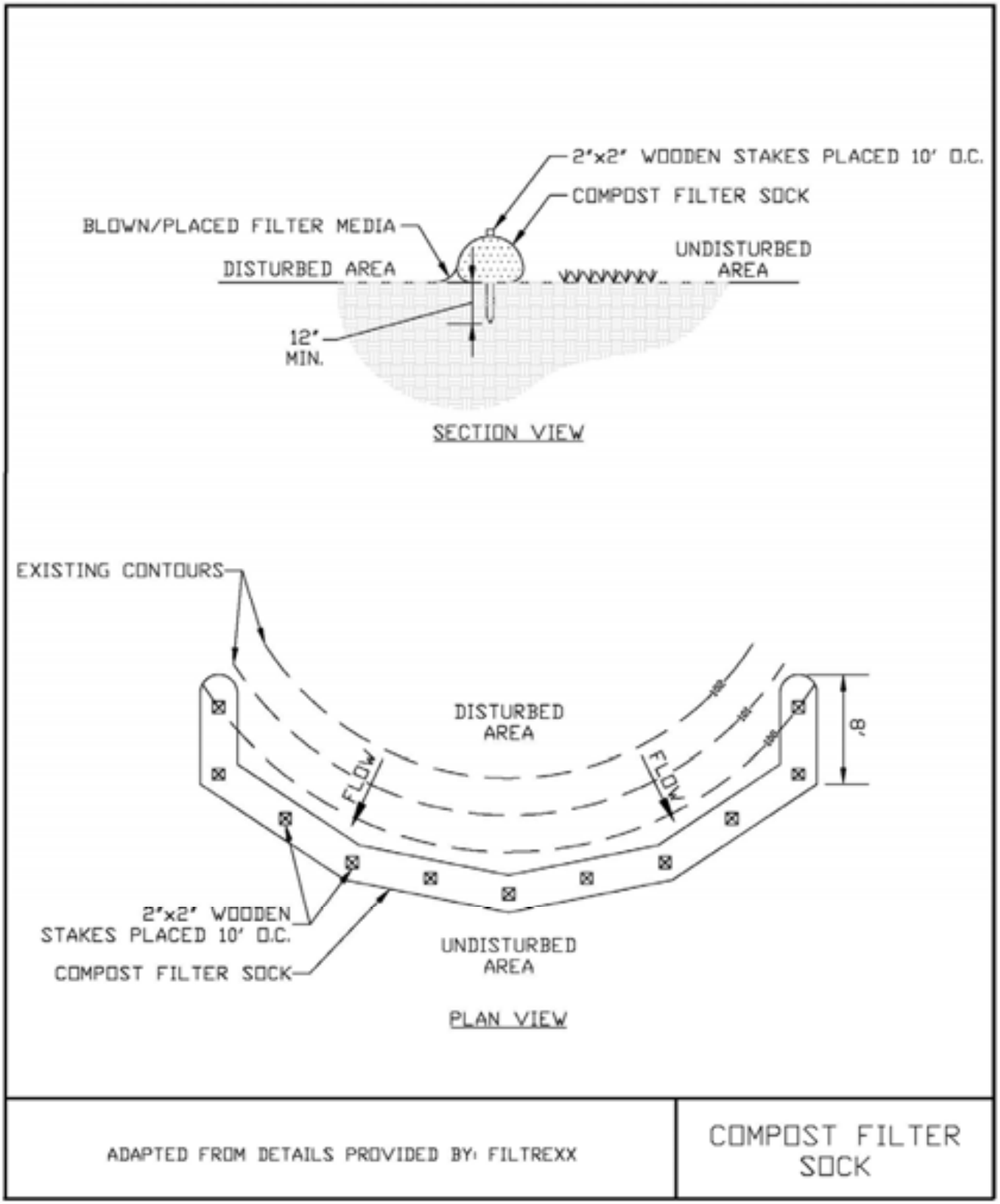
Table 5.1 - Compost Sock Fabric Minimum Specifications Table

Material Type	3 mil HDPE	5 mil HDPE	5 mil HDPE	Multi-Filament Polypropylene (MFPP)	Heavy Duty Multi-Filament Polypropylene (HDMFPP)
Material Characteristics	Photodegradable	Photodegradable	Biodegradable	Photodegradable	Photodegradable
Sock Diameters	12" 18"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"
Mesh Opening	3/8"	3/8"	3/8"	3/8"	1/8"
Tensile Strength		26 psi	26 psi	44 psi	202 psi
Ultraviolet Stability % Original Strength (ASTM G-155)	23% at 1000 hr.	23% at 1000 hr.		100% at 1000 hr.	100% at 1000 hr.
Minimum Functional Longevity	6 months	9 months	6 months	1 year	2 years

Table 5.2 - Compost Standards Table

Organic matter content	25% - 100% (dry weight)
Organic portion	Fibrous and elongated
pH	6.0 – 8.0
Moisture content	30% - 60%
Particle size	100% passing a 1" screen and 10 - 50% passing a 3/8" screen
Soluble salt concentration	5.0 dS/m (mmhos/cm) maximum

Figure 5.2
Compost Filter Sock



STANDARD AND SPECIFICATIONS FOR DEWATERING DEVICE

Definition & Scope

An appurtenance to a sediment trapping structure such as a basin or trap that allows sediment laden water to pond allowing sediment to settle out while removing relatively clean water to a suitable, stable outlet.

Condition Where Practice Applies

Dewatering devices are appropriate where the discharge from a trap or basin will be by gravity flow through a riser and pipe outlet system. The skimmer dewatering device is the preferred option. A fixed pipe dewatering device, configured as a perforated vertical riser surrounded by filter fabric and stone material is an alternate option for small structures.

Design Criteria

Skimmer Device

1. Skimmers must be designed so as to float just beneath the water surface to remove the least sediment laden water effectively.
2. Skimmer shall be constructed with a 4 foot long flexible pipe elbow to allow for vertical movement of the skimmer for its designated range of operation.
3. The designer will provide a table that shows all required dimensions for the skimmer. An example of this table is shown in Figure 5.4 on page 5.12. See design example in Appendix B.
4. The skimmer will be provided with vertical travel guides and a resting stone pad set at the appropriate design elevation.
5. The orifice plate will be at the "T" intersection of the perforated skimmer section with the non-perforated extension arm.

Riser-Pipe Device

1. The riser-pipe device is constructed as a fixed rigid structure with a larger diameter pipe as the vertical riser connected to a smaller diameter horizontal pipe barrel.
2. The joint of these two conduits will be anchored by means of a concrete block or welded steel plate to prevent flotation.
3. The riser will be perforated above the bottom of the dewatering zone elevation and wrapped with a geotextile filter fabric to filter out sediment.
4. The filter fabric shall be covered with stone graded as NYSDOT #1, #2, or a blend of both, to protect the fabric from deterioration.
5. An orifice plate shall be placed in the riser at the bottom of the dewatering zone elevation to control the dewatering rate.

Dewatering Drawdown

As a minimum, sediment traps and basins should have their temporary storage dewatered over a 48 hour period to maximize sediment retention. If the soils disturbed within the drainage area will have 60% - 80% fines the settling time should be increased to 4 days. Soils containing greater than 80% fines will need longer settling times but in no case longer than 7 days to maintain the hydraulic performance of the basin for recurring runoff events.

1. Skimmer orifices may be sized by using the design chart shown in Figure 5.3 on page 5.11.
2. Riser-pipe orifice sizes may be approximated by the following formula:

$$A_0 = \frac{A_s \times 2h^{0.5}}{T \times C_d \times 20{,}428}$$

Where:

A_0 = Areas of the dewatering orifice (ft^2)

As = Surface area of the basin/trap (ft^2)

h = head of water above the orifice (ft)

C_d = 0.6 (contraction coefficient of an orifice)

T = Detention time needed to dewater basin (48 hours minimum)

Therefore, the minimum A_o formula for 48 hrs. reduces to:

$$A_o = \frac{A_s \times 2h^{0.5}}{588{,}326}$$

Material Specifications

1. Skimmer Devices - These devices shall be constructed with Schedule 40 PVC pipe with diameters of 4 to 6 inches. The flexible arm shall be equal diameter of non -perforated, corrugated, plastic tubing.

2. Riser-pipe Devices - These devices shall be constructed of Schedule 40 PVC if plastic pipe is used or galvanized corrugated steel or aluminum pipe. The minimum diameter shall be 6 inches if the device is used in conjunction with another permanent riser. All perforations will be at the interior of the corrugations.

Maintenance

1. Dewatering devices shall be inspected weekly and after each runoff event.

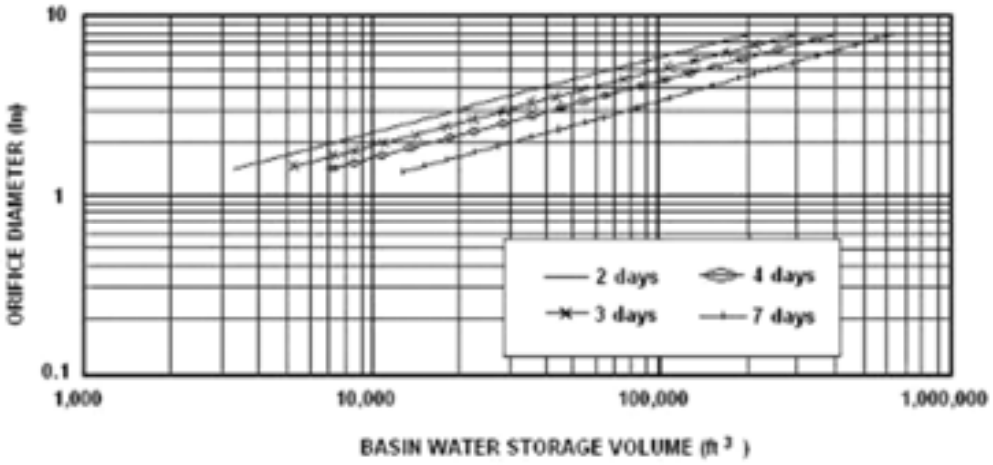
2. Filter fabric or media will be replaced as needed.

3. Any malfunctioning skimmer or its components shall be repaired or replaced within 24 hours of inspection notification.

4. Sediment shall be removed from the system when it reaches the level marked in a sediment cleanout stake or the top of the skimmer landing area.

5. The structure shall only be removed when the tributary area has been properly stabilized.

Figure 5.3 - Skimmer Orifice Design Chart



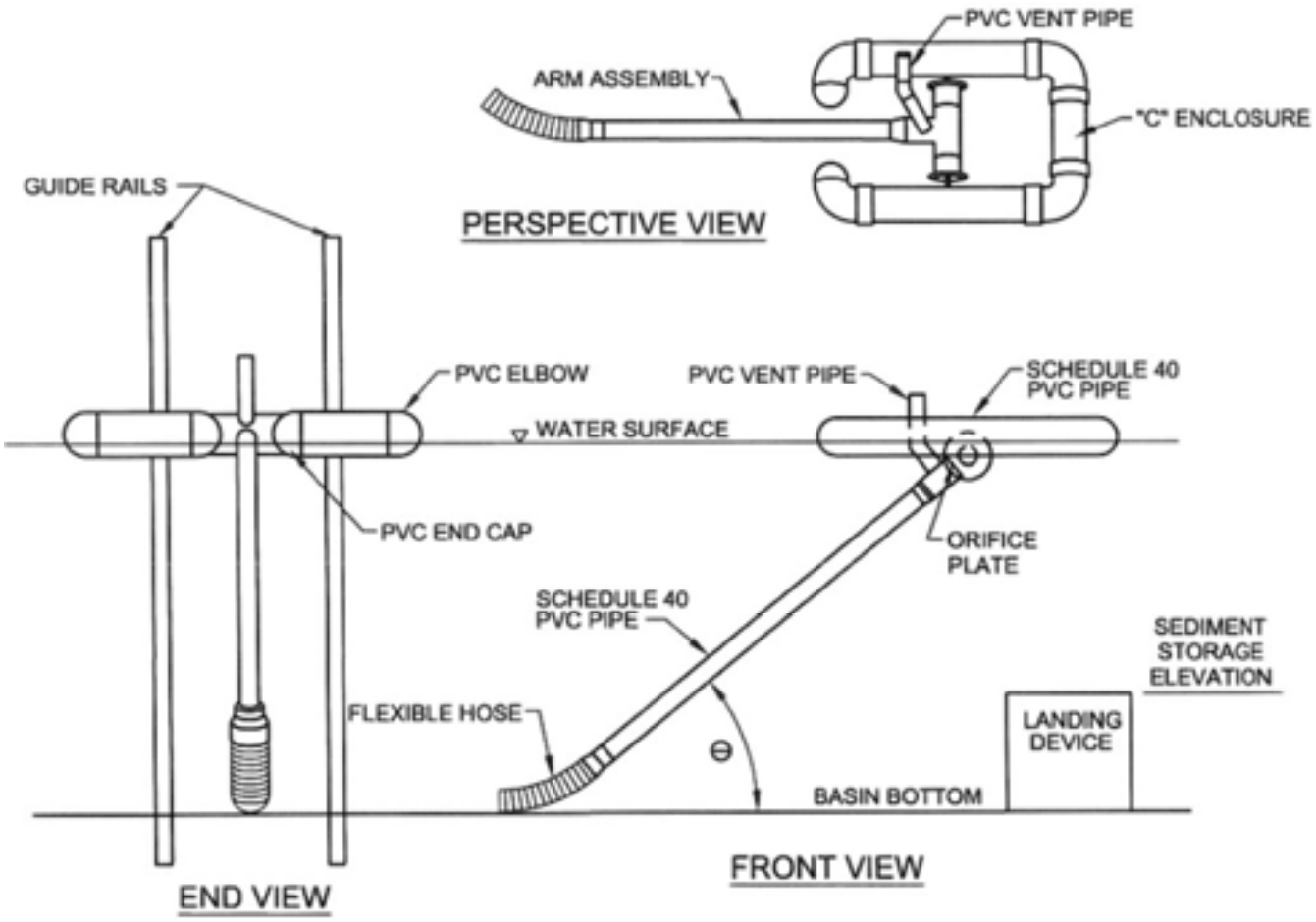
* Figure adapted from Penn State Agricultural and Biological Fact Sheet F-253

Notes:

1. Figure 5.3 is for use in designing the orifice plate for the skimmer shown in Figure 5.4. It assumes 3" to 5" head (depending upon the size of the skimmer). The required head for use of Figure 5.3 varies as follows: For a skimmer with a dewatering tube ≤ 2 1/2" diameter, use a 2" head. For a 3" diameter tube, use a 2.5" head; 4" tube, use 3.3" head, 5" tube use 4" head, and 6" diameter tube use 5" head.

2. Find the vertical line representing the basin's dewatering zone volume. At the intersection of the vertical line with the desired dewatering time, read horizontally to the left to find the required skimmer orifice diameter.

Figure 5.4
Skimmer Dewatering Device



* Figure adapted from Penn State Agricultural and Biological Fact Sheet F-253

Basin No.	Water Surface Elevation (ft.)	Arm Length* (ft.)	Arm Dia. (in.)	Orifice Size** (in.)	Top of Landing Device Elevation (ft.)	Flexible Hose Length (in.)	Flexible Hose Attachment Elevation (ft.)

* Minimum Arm length = Full design storage depth x 1.414 (for 45 degree angle)
** Must be equal to or less than arm diameter

Skimmer Construction Notes

1. Pipe flotation section shall be solvent welded to ensure an airtight assembly. The contractor is required to conduct a test to check for leaks prior to installation.

2. Skimmer section shall have 12 rows of 1/2" diameter holes, 1 1/4" on center. If additional filtration is necessary, the filtering media shall consist of a Type GD-II geotextile fabric wrapped around the perforated portion of the skimmer and attached with plastic snap ties, bands, etc.

3. Flexible pipe shall be inserted into solid pipe and fastened with 2 #8 wood screws.

4. At a minimum, the structure shall be inspected after each rain and repairs made as needed. If vandalism is a problem, more frequent inspection may be necessary.

5. Construction operations shall be carried out in such a manner that erosion and water pollution are minimized.

6. The structure shall only be removed when the contributing drainage area has been properly stabilized.

Materials

(Note: materials for a 4" diameter arm assembly)

1. Solid Pipe - 4" Schedule 40 PVC

2. Perforated Pipe - 4" Schedule 40 PVC

3. 90º Tee (1 each) - 4" Schedule 40 PVC

4. 90º Elbow (4 each) - 4" Schedule 40 PVC

5. Cap (2 each) - 4" Schedule 40 PVC, solid

6. Flexible pipe - 4" Corrugated Plastic Tubing (non-perforated)

Figure 5.5
Riser Pipe Dewatering Device

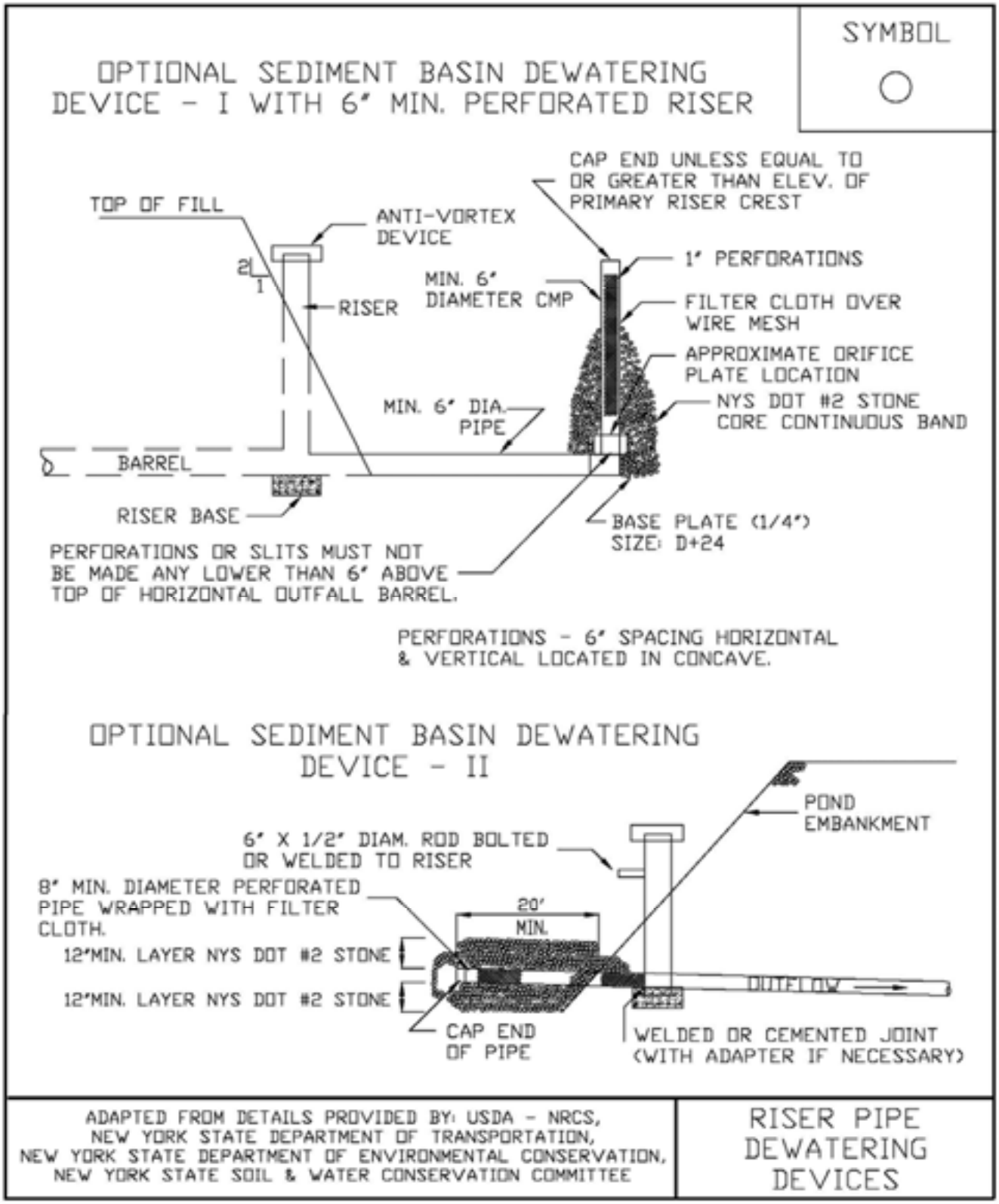


Figure 5.6
Riser Pipe Dewatering Device Construction Notes

Riser Pipe Construction Notes

1. Standpipe and connector pipe shall be a minimum of 6 inches diameter.

2. Metal pipe may be galvanized steel or aluminum; plastic pipe may be Schedule 40 PVC or HDPP.

3. Construction operations shall be carried out in such a manner that erosion and water pollution are minimized.

4. The structure shall only be removed when the contributing drainage area has been properly stabilized.

5. All pipe connections shall be watertight. The lower portion of the standpipe, at a point above the barrel connection, shall be fitted with an internal orifice plate sized to release the volume of the basin no sooner than 48 hours.

6. The top 2/3 of the standpipe shall be perforated with 1 inch diameter hole or slit spaced 6 inches vertically and horizontally and placed in the concave portion of the pipe. No holes will be allowed within 6 inches inches of the horizontal connector pipe.

7. The riser shall be wrapped with a Type GD-II geotextile fabric. The fabric shall extend 6inches above the highest hole and 6" below the lowest hole. Where ends of fabric come together, they shall be overlapped, folded and stapled to prevent bypass.

8. Straps or connecting bands shall be used to hold the fabric and wire mesh (as needed) in place. They shall be placed at the top and bottom of the cloth.

9. The standpipe shall be anchored with either concrete base or steel plate base to prevent flotation. Concrete bases shall be 12 inches thick with the standpipe embedded nine inches. Steel plate bases will be 1/4 inch minimum thickness attached to the standpipe by a continuous weld around the bottom to form a watertight connection. The plate shall have 2.5 feet of stone, gravel or tampered earth placed on it.

10. The perforated standpipe shall be surrounded by NYSDOT #1 or #2 stone or a blend of both to protect the filter fabric.

STANDARD AND SPECIFICATIONS FOR GEOTEXTILE FILTER BAG

Definition & Scope

A **temporary** portable device through which sediment laden water is pumped to trap and retain sediment prior to its discharge to drainageways or off-site.

Condition Where Practice Applies

On sites where space is limited such as urban construction or linear projects (e.g. roads and utility work) where rights-of-way are limited and larger de-silting practices are impractical.

Design Criteria

1. Location - The portable filter bag should be located to minimize interference with construction activities and pedestrian traffic. It should also be placed in a location that is vegetated, relatively level, and provides for ease of access by heavy equipment, cleanout, disposal of trapped sediment, and proper release of filtered water.

   The filter bag shall also be placed at least 50 feet from all wetlands, streams or other surface waters.

2. Size - Geotextile filter bag shall be sized in accordance with the manufacturers recommendations based on the pump discharge rate.

Materials and Installation

1. The geotextile material will have the following attributes:

Minimum Grab Tensile Strength	200 lbs.
Minimum Grab Tensile Elongation	50 %
Minimum Trapezoid Tear Strength	80 lbs.
Mullen Burst Strength	380 psi
Minimum Puncture Strength	130 lbs
Apparent Opening Size	40 - 80 US sieve
Minimum UV Resistance	70%
Minimum Flow Thru Rate	70 gpm/sq ft

2. The bag shall be sewn with a double needle machine using high strength thread, double stitched “Joe” type capable of minimum roll strength of 100 lbs/inch (ASTM D4884).

3. The geotextile filter bag shall have an opening large enough to accommodate a 4 inch diameter discharge hose with an attached strap to tie off the bag to the hose to prevent back flow.

4. The geotextile shall be placed on a gravel bed 2 inches thick, a straw mat 4 inches thick, or a vegetated filter strip to allow water to flow out of the bag in all directions.

Maintenance

1. The geotextile filter bag is considered full when remaining bag flow area has been reduced by 75%. At this point, it should be replaced with a new bag.

2. Disposal may be accomplished by removing the bag to an appropriate designated upland area, cut open, remove the geotextile for disposal, and spread sediment contents and seeded and mulched according to the vegetative plan.

STANDARD AND SPECIFICATIONS FOR ROCK DAM

Definition & Scope

A rock embankment located to capture and retain sediment on the construction site and prevent sedimentation in offsite water bodies.

Conditions Where Practice Applies

The rock dam may be used instead of the standard sediment basin with barrel and riser. The rock dam is preferred when it is difficult to construct a stable, earthen embankment and rock materials are readily available. The site should be accessible for periodic sediment removal. This rock dam shall not be located in a perennial stream. The top of the dam will serve as the overflow outlet. The inside of the dam will be faced with smaller stone to reduce the rate of seepage so a sediment pool forms during runoff events.

Design Criteria

Drainage Area: The drainage area for this off stream structure is limited to 50 acres.

Location: The location of the dam should:

- provide a large area to trap sediment
- intercept runoff from disturbed areas
- be accessible to remove sediment
- not interfere with construction activities

Storage Volume: The storage volume behind the dam shall be at least 3,600 cubic feet per acre of drainage area to the dam. This volume is measured one foot below the crest of the dam.

Dam Section:

Top Width	5 feet minimum @ crest
Side Slopes	2:1 upstream slope 3:1 downstream slope
Height	6’ max to spillway crest

Length of Crest: The crest length should be designed to carry the 10 yr. peak runoff with a maximum flow depth of 1 foot and 1 foot of freeboard.

Rock at the abutments should extend at least 2 feet above the spillway and be at least 2 feet thick. These rock abutments should extend at least one foot above the downstream slope to prevent abutment scour. A rock apron at least 1.5 feet thick should extend downstream from the toe of the dam a distance equal to the height of the dam to protect the outlet area from scour.

Rock Fill: The rock fill should be well graded, hard, erosion resistant stone with a minimum d_{50} size of 9 inches. A “key trench” lined with geotextile filter fabric should be installed in the soil foundation under the rock fill. The filter fabric must extend from the key trench to the downstream edge of the apron and abutments to prevent soil movement and piping under the dam.

The upstream face of the dam should be covered with a fine washed gravel (NYS-DOT #1 or #1A gravel, crushed stone or equal) a minimum 3 feet thick to reduce the drainage rate.

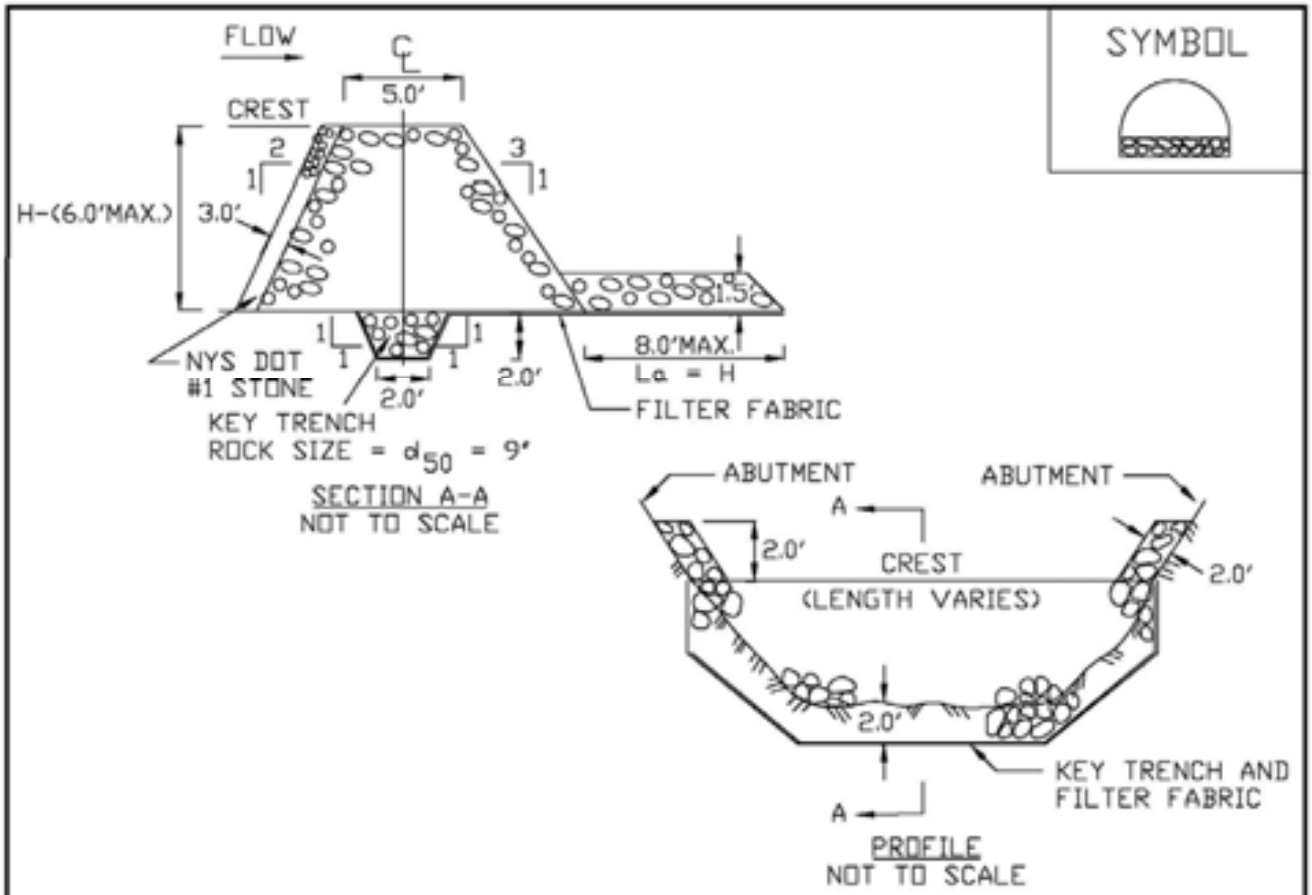
Trapping Efficiency: To obtain maximum trapping efficiency, design for a long detention period. Usually a minimum of eight (8) hours before the basin is completely drained. Maximize the length of travel of sediment laden water from the inlet to the drain for a minimum length to width ratio of 2 to 1 or greater. Achieve a surface area equal to 0.01 acres per cfs (inflow) based on the 10-year storm. See Figure 5.7 on page 5.18 for details.

Maintenance

Check the basin area after each rainfall event. Remove sediment and restore original volume when sediment accumulates to one-half the design volume. Check the structure for erosion, piping, and rock displacement after each significant event and replace immediately.

Remove the structure and any sediment immediately after the construction area has been permanently stabilized. All water should be removed from the basin prior to the removal of the rock dam. Sediment should be placed in designated disposal areas and not allowed to flow into streams or drainage ways during structure removal.

Figure 5.7
Rock Dam



CONSTRUCTION SPECIFICATIONS

1. THE AREA UNDER THE ROCK DAM SHALL BE CLEARED AND STRIPPED OF ROOTS AND OTHER OBJECTIONABLE MATERIAL. THE RESERVOIR SHALL BE CLEARED AS NEEDED TO FACILITATE SEDIMENT REMOVAL.
2. DIMENSIONS SHOWN ARE MINIMUM. TRENCH SHALL BE EXCAVATED FROM ABUTMENT TO ABUTMENT ON THE DAM CENTERLINE. FILTER FABRIC SHALL BE PLACED FROM UPSTREAM EDGE OF KEYTRENCH TO DOWNSTREAM EDGE OF APRON. JOINTS WILL LAP A MINIMUM OF 1 FT. WITH UPSTREAM STRIP ON TOP.
3. CONSTRUCT THE ROCK EMBANKMENT TO THE DIMENSIONS SHOWN ON THE DRAWING. ROCK ABUTMENTS SHALL BE MAINTAINED 2 FT. ABOVE THE CREST.
4. THE ROCK DAM SHALL BE CONSTRUCTED PRIOR TO CLEARING THE BASIN AREA. STABILIZE ALL DISTURBED AREAS, EXCEPT THE BASIN AREA, WITH TEMPORARY SEEDING.
5. FENCES AND WARNING SIGNS SHOULD BE PLACED AS APPROPRIATE.

MAXIMUM DRAINAGE AREA: 50 ACRES

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS,
NEW YORK STATE DEPARTMENT OF TRANSPORTATION,
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION,
NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

ROCK DAM

STANDARD AND SPECIFICATIONS FOR SEDIMENT BASIN

Definition & Scope

A **temporary** basin with a barrier or dam constructed across a drainage way or at other suitable locations to intercept sediment-laden runoff and reduce the amount of sediment leaving the disturbed area in order to protect drainageways, properties, and rights-of-way below the sediment basin.

Conditions Where Practice Applies

A sediment basin is appropriate where physical site conditions or land ownership restrictions preclude the installation of other control measures to adequately control runoff, erosion, and sedimentation. However, it is required that other erosion control measures be used with the sediment basin. The basin may be used below construction operations which expose critical areas to soil erosion. The basin shall be maintained until the disturbed area is protected against erosion by permanent stabilization.

This standard applies to the installation of temporary sediment basins on sites where: (a) failure of the structure would not result in loss of life, damage to homes or buildings, or interruption of use or service of public roads or utilities; (b) the drainage area does not exceed 50 acres; and (c) the basin is to be removed within 36 months after the beginning of construction of the basin.

Permanent (to function more than 36 months) sediment basins, or structures that temporarily function as a sediment basin but are intended for use as a permanent pool shall be classified as **permanent** structures and shall conform to criteria appropriate for permanent structures. These structures shall be designed and constructed to conform to NRCS Standard And Specification No. 378 for Ponds in the National Handbook of Conservation Practices and the New York State Department of Environmental Conservation, "Guidelines for the Design of Dams."

Design Criteria

Compliance with Laws and Regulations

Design and construction shall comply with state and local laws, ordinances, rules and regulations, including permits.

Location - Maximum Drainage Area = 50 acres

The sediment basin should be located to obtain the maximum storage benefit from the terrain and for ease of cleanout of the trapped sediment. It should be located to minimize interference with construction activities and construction of utilities. Whenever possible, sediment basins should be located so that storm drains may outfall or be diverted into the basin. **Do not locate basins in perennial streams.**

Size and Shape of the Basin

The sediment basin will contain two separate zones. The lowest zone is the sediment storage zone. This zone is sized for a volume equal to 1,000 cubic feet per disturbed acre over the course of the life of the project, contributing to the basin as measured from the bottom of the basin to the bottom of the dewatering zone. It shall have a minimum depth of 1 foot. Layered above this zone is the dewatering zone. This zone is sized for a minimum volume equal to 3,600 cubic feet per each acre draining to the basin. This volume is temporarily stored between the sediment storage zone and the crest of the principal spillway. This zone should be a minimum of 3 feet deep. See Figures 5.8 and 5.9 on pages 5.26 and 5.27. This 3,600 cubic feet per acre is equivalent to one inch of sediment per acre of drainage area. The entire drainage area is used for this computation, rather than the disturbed area above, to maximize trapping efficiency. The length to width ratio shall be 2:1 or greater, where length is the distance between the inlet and outlet. A wedge shape shall be used with the inlet located at the narrow end. See Figure 5.22 on page 5.41.

Surface Area

Research studies (Barfield and Clar 1985; Pitt, 2003) indicate that the following relationship between surface area and peak inflow rate gives a trapping efficiency of 75% for silt loam soils, and greater than 90% for loamy sand soils:

$A = 0.01\ Qp$ or, $A = 0.015x$ D.A. (whichever is greater)

where,

A = the basin surface area, acres, measured at the service spillway crest; and

Qp = the peak inflow rate for the design storm. (The minimum design storm will be a 10 year, 24 hour storm under construction conditions).

D.A. = contributing drainage area.

Sediment basins shall be cleaned out when the sediment storage zone volume described above is reduced by 50 percent, except in no case shall the sediment level be permitted to build up higher than one foot below the bottom of the dewatering zone. At this elevation, cleanout shall be performed to restore the original design volume to the sediment storage zone.

The elevation corresponding to the maximum allowable sediment level shall be determined and shall be stated in the design data as a distance below the top of the riser and shall be clearly marked on the riser.

The basin dimensions necessary to obtain the required basin volume as stated above shall be clearly shown on the plans to facilitate plan review, construction, and inspection.

Spillway Design

Runoff shall be computed by standard accepted hydrologic methods noted previously in this book of standards. **Runoff computations shall be based upon the worst soil cover conditions expected to prevail in the contributing drainage area during the anticipated effective life of the structure.** The combined capacities of the principal and emergency spillway shall be sufficient to pass the peak rate of runoff from a ten (10) year frequency, 24 hour duration storm.

1. Principal spillway: A spillway consisting of a vertical pipe or box type riser joined (watertight connection) to a pipe (barrel) which shall extend through the embankment and outlet beyond the downstream toe of the fill. The minimum capacity of the principal spillway shall be 0.2 cfs per acre of drainage area when the water surface is at the emergency spillway crest elevation. For those basins with no emergency spillway, the principal spillway shall have the capacity to handle the peak flow from a ten-year frequency rainfall event. The minimum size of the barrel shall be 8 inches in diameter. See Figures 5.10, 5.11 and 5.12 on pages 5.28, 5.29, and 5.30 for principal spillway sizes and capacities.

   A. Crest elevation: When used in combination with an emergency spillway, the crest elevation of the riser shall be a minimum one foot below the elevation of the control section of the emergency spillway.

   B. Watertight riser and barrel assembly: The riser and all pipe connections shall be completely watertight except for the inlet opening at the top, or a dewatering opening. There shall not be other holes, leaks, rips, or perforations in the structure.

   C. Dewatering the basin:

      1) Preferred Method- The preferred method for dewatering sediment basins is by using surface skimmers to decant the cleaner top surface water from the basin as the sediment settles out. See Dewatering Device Standard, page 5.10.

      2) Alternative Method– A fixed vertical riser pipe configured with perforations and filter fabric with a cone of pea gravel or small crushed stone is an alternative option for use. See Figure 5.5 on page 5.14.

      The sediment basin dewatering system shall be designed to release the dewatering zone volume between 2 to 7 days in watersheds not impaired by sediment, and 4-7 days in sediment impaired watersheds (check the NYSDEC Waterbody Inventory/Priority Waterbody List - **http://www.dec.ny.gov/chemical/36730.html**, to see if your site is in an impaired watershed). The design performance range will depend on the percent of silt and clay in the soils tributary to the basin. If the performance of the basin does not meet water quality objectives after 7 days, chemical treatment may be necessary.

   D. Anti-vortex device and trash rack:

      An anti-vortex device and trash rack shall be securely installed on top of the riser and shall be the concentric type as shown in Figure 5.13 and 5.14 on pages 5.31 and 5.32.

   E. Base:

      The riser shall have a base attached with a watertight connection and shall have sufficient weight to prevent flotation of the riser. Two approved bases for risers ten feet or less in height are: 1) a concrete base 18 in. thick with the riser embedded 9 in. in the base, and 2) a ¼" minimum thickness steel plate attached to the riser by a continuous weld around the circumference of the riser to form a watertight connection. The plate shall have 2.5 feet of stone, gravel, or compacted earth placed on it to prevent flotation. In either case, each side of the square base shall be twice the riser diameter.

      For risers greater than ten feet high, computations

shall be made to design a base which will prevent flotation. The minimum factor of safety shall be 1.20 (Downward forces = 1.20 x upward forces). See Figure 5.15 on page 5.33 for details.

F. Anti-Seep Collars: Anti-seep collars shall be installed around all conduits through earth fills of impoundment structures according to the following criteria:

1) Collars shall be placed to increase the seepage length along the conduit by a minimum of 15 percent of the pipe length located within the saturation zone.

2) Collar spacing shall be between 5 and 14 times the vertical projection of each collar.

3) All collars shall be placed within the saturation zone.

4) The assumed normal saturation zone (phreatic line) shall be determined by projecting a line at a slope of 4 horizontal to 1 vertical from the point where the normal water (riser crest) elevation touches the upstream slope of the fill to a point where this line intersects the invert of the pipe conduit. All fill located within this line may be assumed as saturated.

$$2(N)(P) = 1.15(L_s) \qquad N = (0.075)(L_s)/P$$

When anti-seep collars are used, the equation for revised seepage length becomes:

Where: Ls = Saturated length is length, in feet, of pipe between riser and intersection of phreatic line and pipe invert.

N = number of anti-seep collars.

P = vertical projection of collar from pipe, in feet.

5) All anti-seep collars and their connections shall be watertight. See Figures 5.16 and 5.17 on pages 5.34 and 5.35 for anti-seep collar design and Figure 5.18 on page 5.36 for construction details. Seepage diaphragms may be used in lieu of anti-seep collars. They shall be designed in accordance to USDA NRCS Pond Standard 378.

G. Outlet: An outlet shall be provided, including a means of conveying the discharge in an erosion free manner to an existing stable channel. Where discharge occurs at the property line, drainage easements will be obtained in accordance with local ordinances. Adequate notes and references will be shown on the erosion and sediment control plan.

Protection against scour at the discharge end of the pipe spillway shall be provided. Measures may include basin, riprap, revetment, excavated plunge pools, or other approved methods. See Standard and Specification for Rock Outlet Protection, Section 3, page 3.39.

2. Emergency Spillways: The entire flow area of the emergency spillway shall be constructed in undisturbed ground (not fill). The emergency spillway cross-section shall be trapezoidal with a minimum bottom width of eight feet. This spillway channel shall have a straight control section of at least 20 feet in length; and a straight outlet section for a minimum distance equal to 25 feet.

A. Capacity: The minimum capacity of the emergency spillway shall be that required to pass the peak rate of runoff from the 10 year 24-hour frequency storm, less any reduction due to flow in the pipe spillway. Emergency spillway dimensions may be determined by using the method described in Figure 5.19 on page 5.37 and the Design Tables in Figures 5.20 and 5.21 on pages 5.38 and 5.39.

B. Velocities: The velocity of flow in the exit channel shall not exceed 5 feet per second for vegetated channels. For channels with erosion protection other than vegetation, velocities shall be within the non-erosive range for the type of protection used.

C. Erosion Protection: Erosion protection shall be provided for by vegetation as prescribed in this publication or by other suitable means such as riprap, asphalt or concrete.

D. Freeboard: Freeboard is the difference between the design high water elevation in the emergency spillway and the top of the settled embankment. If there is no emergency spillway, it is the difference between the water surface elevation required to pass the design flow through the pipe and the top of the settled embankment. Freeboard shall be at least one foot.

Embankment Cross-Section

1. The maximum height of dam = 15 feet (measured from the low point of original ground at the downstream toe to the top of the dam).

2. Minimum top width of dam = 10 feet.

3. Side slopes shall be 2.5 to 1 or flatter.

Entrance of Runoff into Basin

Points of entrance of surface runoff into excavated sediment basins shall be protected to prevent erosion. Considerable care should be given to the major points of inflow into basins. In many cases the difference in elevation of the inflow and the bottom of the basin is considerable, thus creating a potential for severe gullying and sediment generation. Often a riprap drop at major points of inflow would eliminate gullying and sediment generation.

Diversions, grade stabilization structures or other water control devices shall be installed as necessary to ensure direction of runoff and protect points of entry into the basin. Points of entry should be located so as to ensure maximum travel distance of entering runoff to point of exit (the riser) from the basin.

Disposal

The sediment basin plans shall indicate the method (s) of disposing of the sediment removed from the basin. The sediment shall be placed in such a manner that it will not erode from the site. The sediment shall not be deposited downstream from the basin, adjacent to a stream or floodplain. Disposal sites will be covered by an approved sediment control plan.

The sediment basins plans shall also show the method of disposing of the sediment basin after the drainage area is stabilized, and shall include the stabilization of the sediment basin site. Water contained within the storage areas shall be removed from the basin by pumping, cutting the top of the riser, or other appropriate method prior to removing or breaching the embankment. **Sediment shall not be allowed to flush into a stream or drainageway.**

Chemical Treatment

Precipitation of sediment is enhanced with the use of specific chemical flocculants that can be applied to the sediment basin in liquid, powder, or solid form. Flocculants include anionic polyelectrolytes such as polyacrylimides, aluminum sulfate (alum), polyaluminum chloride and chitosan. Cationic polyelectrolytes have a greater toxicity to fish and other aquatic organisms than anionic polyelectrolytes because they bind to the gills of fish resulting in respiratory failure (Pitt, 2003).

Chemical treatment shall not be substituted for proper erosion and sediment control. To reduce the need for flocculants, proper controls include planning, phasing, sequencing and practice design in accordance to NY Standards. **Chemical applications shall not be applied without written approval from the NYSDEC.**

Safety

Sediment basins are attractive to children and can be very dangerous. Local ordinances and regulations must be adhered to regarding health and safety. The developer or owner shall check with local building officials on applicable safety requirements. If fencing of sediment basins is required, the location of and type of fence shall be shown on the plans.

Construction Specifications

Site Preparation

Areas under the embankment shall be cleared, grubbed, and stripped of topsoil to remove trees, vegetation, roots, or other objectionable material. In order to facilitate cleanout and restoration, the pool area (measured at the top of the pipe spillway) will be cleared of all brush, trees, and other objectionable materials.

Cutoff-Trench

A cutoff trench shall be excavated along the centerline of earth fill embankments. The minimum depth shall be two feet. The cutoff trench shall extend up both abutments to the riser crest elevation. The minimum bottom width shall be four feet, but wide enough to permit operation of excavation and compaction equipment. The side slopes shall be no steeper than 1:1. Compaction requirements shall be the same as those for embankment. The trench shall be dewatered during the back-filling/compaction operations.

Embankment

The fill material shall be taken from approved areas shown on the plans. It shall be clean mineral soil free of roots, woody vegetation, oversized stones, rocks, or other objectionable material. Relatively pervious materials such as sand or gravel (Unified Soil Classes GW, GP, SW & SP) shall not be placed in the embankment. Areas on which fill is to be placed shall be scarified prior to placement of fill. The fill material shall contain sufficient moisture so that it can be formed by hand into a ball without crumbling. If water can be squeezed out of a ball, it is too wet for proper compaction. Fill material shall be placed in six to eight-inch thick continuous layers over the entire length of the fill. Compaction shall be obtained by routing and hauling the construction equipment over the fill so that the entire surface of each layer of the fill is traversed by at least one

wheel or tread track of the equipment or by the use of a compactor. The embankment shall be constructed to an elevation 10 percent higher than the design height to allow for settlement.

Pipe Spillway

The riser shall be securely attached to the barrel or barrel stub by welding the full circumference making a watertight structural connection. The barrel stub must be attached to the riser at the same percent (angle) of grade as the outlet conduit. The connection between the riser and the riser base shall be watertight. All connections between barrel sections must be achieved by approved watertight bank assemblies. The barrel and riser shall be placed on a firm, smooth foundation of impervious soil. Pervious materials such as sand, gravel, or crushed stone shall not be used as backfill around the pipe or anti-seep collars. The fill material around the pipe spillway shall be placed in four-inch layers and compacted under and around the pipe to at least the same density as the adjacent embankment.

A minimum depth of two feet of hand compacted backfill shall be placed over the pipe spillway before crossing it with construction equipment. Steel base plates on risers shall have at least 2 ½ feet of compacted earth, stone, or gravel placed over it to prevent flotation.

Emergency Spillway

The emergency spillway shall be installed in undisturbed ground. The achievement of planned elevations, grades, design width, entrance and exit channel slopes are critical to the successful operation of the emergency spillway and must be constructed within a tolerance of +/- 0.2 feet.

Vegetative Treatment

Stabilize the embankment and emergency spillway in accordance with the appropriate vegetative standard and specification immediately following construction. In no case shall the embankment remain unstabilized for more than three (3) days.

Erosion and Pollution Control

Construction operations shall be carried out in such a manner that erosion and water pollution will be minimized. State and local laws shall be complied with concerning pollution abatement.

Safety

State and local requirements shall be met concerning fencing and signs, warning the public of hazards of soft sediment and floodwater.

Maintenance

1. Repair all damages caused by soil erosion and construction equipment at or before the end of each working day.

2. Sediment shall be removed from the basin when it reaches the specified depth for cleanout noted on the plans which will not exceed 50% of the capacity of the sediment storage zone. This sediment shall be placed in such a manner that it will not erode from the site. The sediment shall not be deposited downstream from the embankment, adjacent to a stream or floodplain.

Final Disposal

When temporary structures have served their intended purpose and the contributing drainage area has been properly stabilized, the embankment and resulting sediment deposits are to be leveled or otherwise disposed of in accordance with the approved sediment control plan. The proposed use of a sediment basin site will often dictate final disposition of the basin and any sediment contained therein. If the site is scheduled for future construction, then the basin material and trapped sediments must be removed, safely disposed of, and backfilled with a structural fill. When the basin area is to remain open space, the pond may be pumped dry, graded, and backfilled.

Information to be Submitted

Sediment basin designs and construction plans submitted for review to a local municipality, New York State DEC, New York City DEP, Soil and Water Conservation District, or other agency shall include the following:

1. Specific location of the basin.

2. Plan view of the storage basin and emergency spillway, showing existing and proposed contours.

3. Cross section of dam, principal spillway, emergency spillway, and profile of emergency spillway.

4. Details of pipe connections, riser to pipe connections, riser base, anti-seep control, trash rack cleanout elevation, and anti-vortex device.

5. Runoff calculations for 1 and 10-year frequency storms, if required.

6. Storage Computations

    A. Zones total required

    B. Zones total Available

    C. Elevation of sediment at which cleanout shall be required; also stated as a distance from the riser

TEMPORARY SEDIMENT BASIN DESIGN DATA SHEET

Computed by _____ Date _____Checked by _____Date _____
Project_____Basin #_____
Location _____ Total Area draining to basin (≤50 Ac.) _____Acres

BASIN SIZE DESIGN

1. Sediment storage zone volume = 1,000 cu. ft. x number of disturbed acres = _____ cu. ft., Top of Zone Elev. _____
2. Dewatering zone volume = 3,600 cu. ft. x number of drainage area acres = _____cu. ft., Top of Zone Elev. _____
3. Length to width ratio = _____
4. A. Cleanout at 50% of sediment storage zone volume, Elev. _____
   B. Distance below top of riser _____ feet
5. Minimum surface area is larger of 0.01 $Q_{(10)}$_____or, 0.015 DA = _____ use _____acres

DESIGN OF SPILLWAYS & ELEVATIONS

Runoff

6. $Q_{p(10)}$ = _____cfs (Attach runoff computation sheets)

Pipe Spillway (Q_{ps})

7. Min. pipe spillway cap., Q_{ps} = 0.2 x _____Drainage Area, acres = _____cfs
   Note: If there is no emergency spillway, then required Q_{ps} = $Q_{p(10)}$ = _____cfs.
8. H, head = _____ft. Barrel length = _____ft
9. Barrel: Diam. _____inches; Q_{ps} = (Q) _____x (cor.fac.)_____=_____cfs.
10. Riser: Diam. _____inches; Length _____ft.; h = _____ft. Crest Elev. _____
11. Trash Rack: Diameter = _____inches; H, height = _____inches

Emergency Spillway Design

12. Emergency Spillway Flow, Q_{es} = Q_p - Q_{ps} = _____ - _____ = _____cfs.
13. Width _____ft.; H_p_____ft Crest elevation _____; Design High Water Elev. _____
    Entrance channel slope_____% ; Top of Dam Elev. _____
    Exit channel slope _____%

ANTI-SEEP COLLAR/SEEPAGE DIAPHRAGM DESIGN

Collars:

14. y = _____ft.; z = _____:1; pipe slope = _____%, L_s = _____ft.
    Use _____ collars, _____ - _____inches square; projection = _____ft.

Diaphragms:

#_____ width_____ ft. height _____ft.

DEWATERING ORIFICE SIZING

(Determined from the Dewatering Device Standard)

15. Dewatering orifice diameter = _____ inches. Skimmer ___ or Riser ____ (check one)
16. Design dewatering time _____ days (Min. 2 days required)

TEMPORARY SEDIMENT BASIN DESIGN DATA SHEET INSTRUCTIONS FOR USE OF FORM

1. Minimum required sediment storage zone volume is 1,000 cubic feet per acre from each disturbed acre within the total drainage area. Minimum required dewatering zone volume is 3,600 cubic feet per total area draining to the basin.

2. The volume of a naturally shaped basin (no excavation in basin) may be approximated by the formula V = (0.4)(A)(d), where V is in cubic feet, A is the surface area of the basin, in square feet, and d is the maximum depth of the basin, in feet. Volume may be computed from contour information or other suitable methods.

3. If volume of basin is not adequate for required storage, excavate to obtain the required zone volumes.

4. The minimum surface area of the basin pool at the storage volume elevation will be the larger of the two elevations shown.

5. Use of the NRCC hydrologic data at www.precip.net with an appropriate hydrologic model, is the preferred process for runoff computation. Runoff curve numbers will be computed for the drainage area that reflects the maximum construction condition.

6. Required minimum discharge from pipe spillway equals 0.2 cfs/ac. times total drainage area. (This is equivalent to a uniform runoff of 5 in. per 24 hours). The pipe shall be designed to carry Q_p if site conditions preclude installation of an emergency spillway to protect the structure.

7. Determine value of "H" from field conditions; "H" is the interval between the centerline of the outlet pipe and the emergency spillway crest, or if there is no emergency spillway, to the design high water.

8. See Pipe Flow Charts, Figures 5.11 and 5.12 on pages 5.29 and 5.30.

9. See Riser Inflow Curves, Figure 5.10 on page 5.28.

10. Compute the orifice size required to dewater the basin over a minimum 48 hour period. See the Dewatering Device Standard on page 5.10.

11. See Trash Rack and Anti-Vortex Device Design, Figures 5.13 and 5.14 on pages 5.31 and 5.32.

12. Compute Q_{es} by subtracting actual flow carried by the pipe spillway from the total inflow, Q_p.

13. Use appropriate tables to obtain values of H_p, bottom width, and actual Q_{es}. If no emergency spillway is to be used, so state, giving reason (s).

14. See Anti-Seep Collar / Seepage Diaphragm Design (see figures 5.16, 5.17 and 5.18 on pages 5.34, 5.35 and 5.36).

15. Fill in design elevations. The emergency spillway crest must be set no closer to riser crest than value of h, which causes pipe spillway to carry the minimum, required Q. Therefore, the elevation difference between spillways shall be equal to the value of h, or one foot, whichever is greater. Design high water is the elevation of the emergency spillway crest plus the value of H_p, or if there is no emergency spillway, it is the elevation of the riser crest plus h required to handle the 10-year storm. Minimum top of dam elevation requires 1.0 ft. of freeboard above design high water.

To use charts for pipe spillway design:

1. Enter chart, Figures 5.11 or 5.12 on pages 5.29 and 5.30 with H and required discharge.

2. Find diameter of pipe conduit that provides equal or greater discharge

3. Enter chart, Figure 5.10 on page 5.28 with actual pipe discharge. Read across to select smallest riser that provides discharge within weir flow portion of rating curve. Read down to find corresponding h required. This h must be 1 foot or less.

Figure 5.8
Pipe Spillway Design

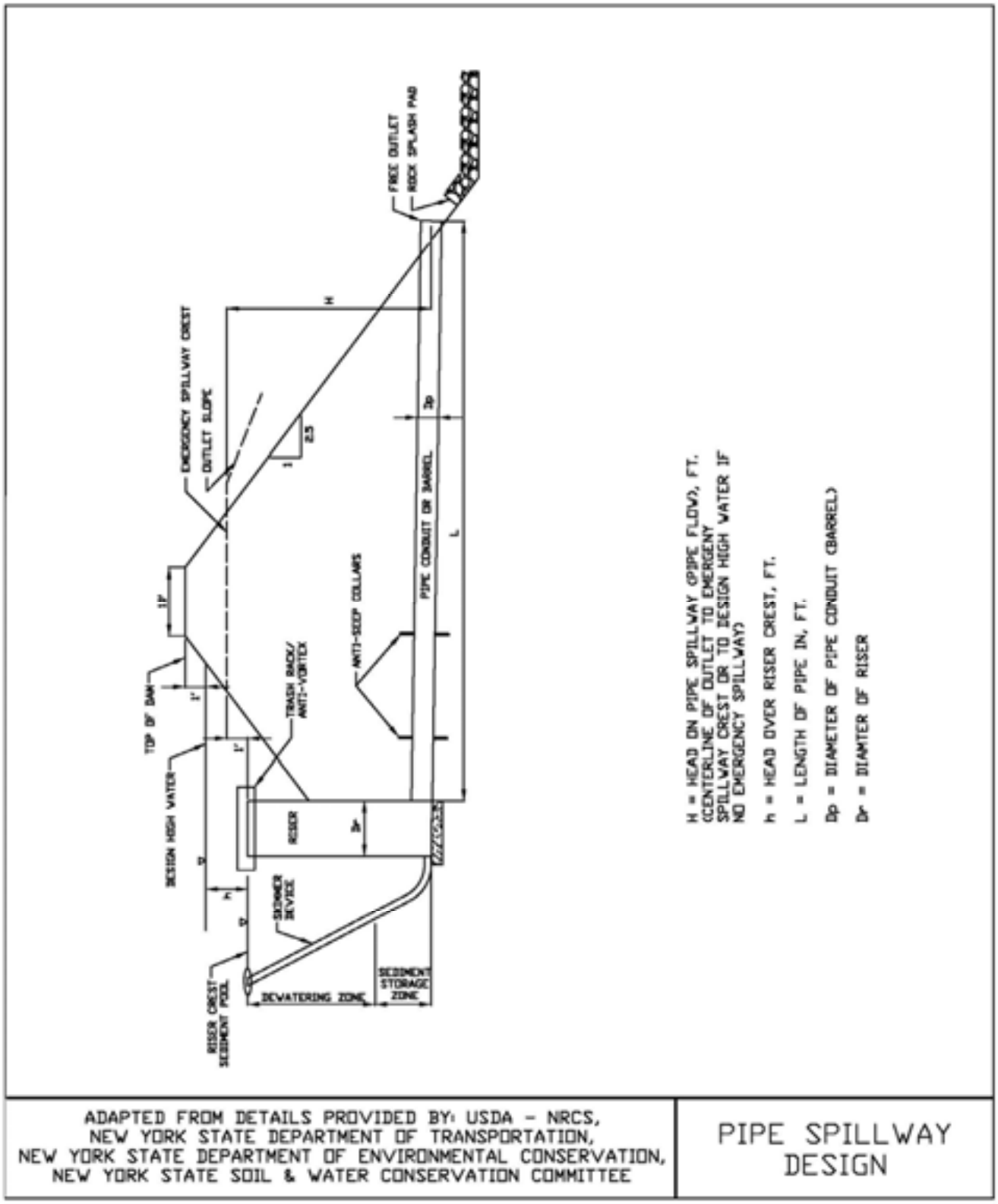


Figure 5.9
Sediment Basin

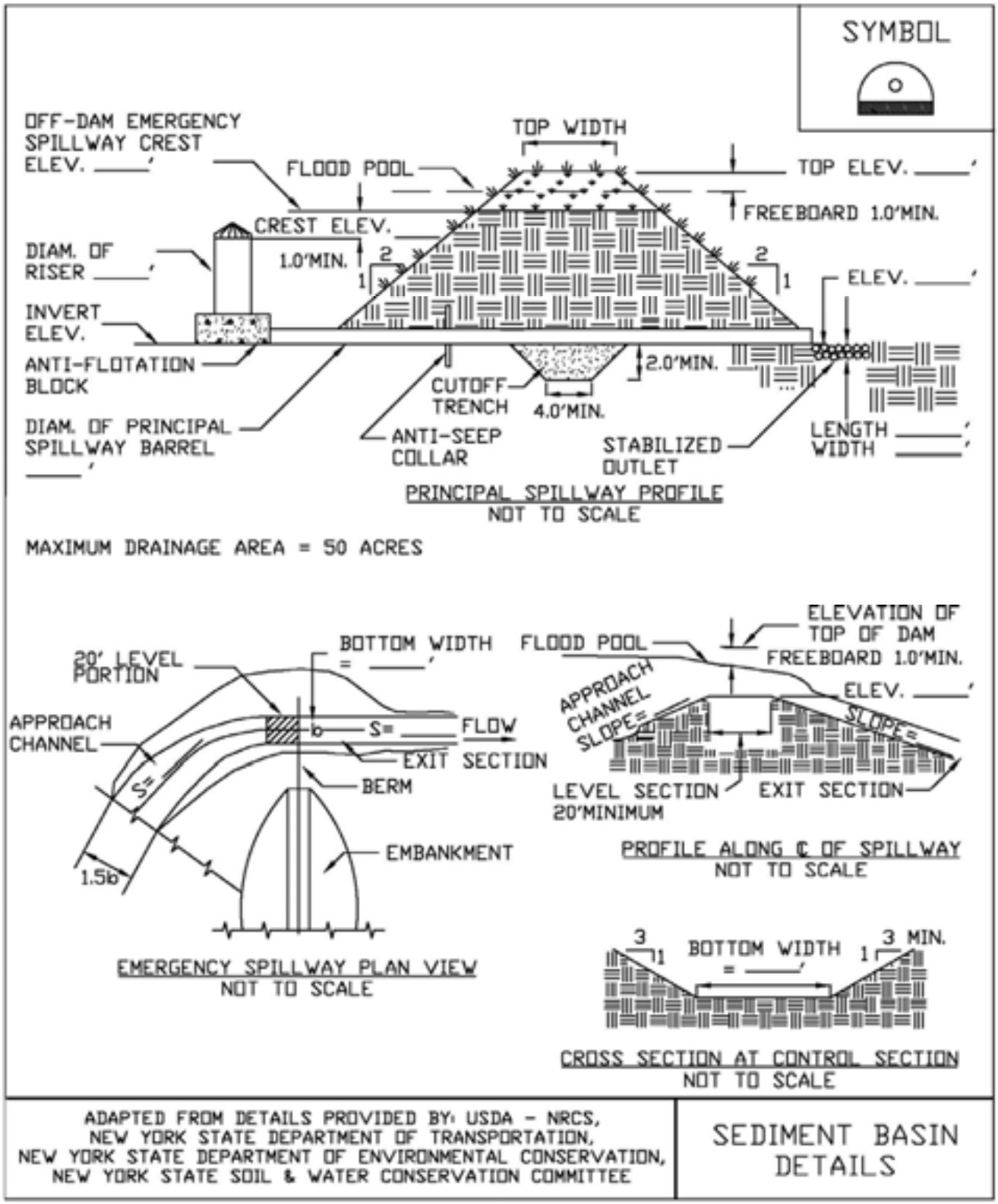


Figure 5.10
Riser Inflow Chart (USDA - NRCS)

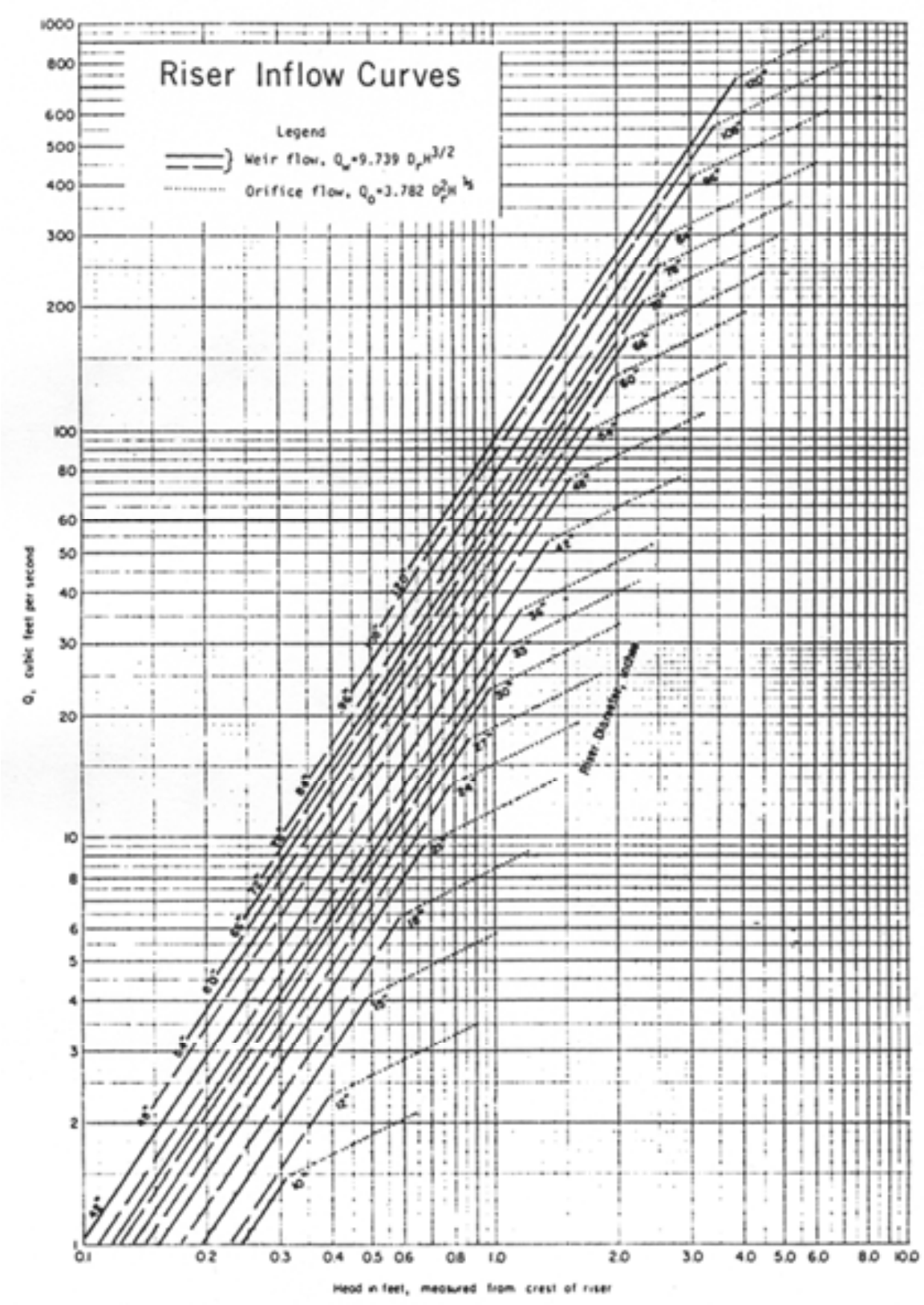


Figure 5.11
Pipe Flow Chart; "n" = 0.025 (USDA - NRCS)

PIPE FLOW CHART n = 0.025

FOR CORRUGATED METAL PIPE INLET $K_e = K_e + K_b = 1.0$ AND 70 FEET OF CORRUGATED METAL PIPE CONDUIT (full flow assumed)

Note correction factors for pipe lengths other than 70 feet

H, in feet	diameter of pipe in inches																							
	6"	8"	10"	12"	15"	18"	21"	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	90"	96"	102"
1	0.33	0.70	1.25	1.98	3.48	5.47	7.99	11.0	18.8	28.8	41.1	55.7	72.6	91.8	113	137	163	191	222	255	290
2	0.47	0.99	1.76	2.80	4.92	7.74	11.3	15.6	26.6	40.8	58.2	78.8	103	130	160	194	231	271	314	360	410
3	0.58	1.22	2.16	3.43	6.02	9.48	13.8	19.1	32.6	49.9	71.2	96.5	126	159	196	237	282	331	384	441	502
4	0.67	1.40	2.49	3.97	6.96	10.9	16.0	22.1	37.6	57.7	82.3	111	145	184	226	274	326	383	444	510	580
5	0.74	1.57	2.79	4.41	7.78	12.2	17.9	24.7	42.1	64.5	92.0	125	162	205	253	306	365	428	496	570	648
6	0.82	1.72	3.05	4.86	8.52	13.4	19.6	27.0	46.1	70.6	101	136	178	225	277	336	399	469	544	624	710
7	0.88	1.86	3.30	5.25	9.20	14.5	21.1	29.2	49.8	76.3	109	147	192	243	300	362	431	506	587	674	767
8	0.94	1.99	3.53	5.61	9.84	15.5	22.6	31.2	53.2	81.5	116	158	205	260	320	388	461	541	628	721	820
9	1.00	2.11	3.74	5.95	10.4	16.4	24.0	33.1	56.4	86.5	123	167	218	275	340	411	489	574	666	764	870
10	1.05	2.22	3.94	6.27	11.0	17.3	25.3	34.9	59.5	91.2	130	176	230	290	358	433	516	605	702	806	917
11	1.10	2.33	4.13	6.58	11.5	18.2	26.5	36.6	62.4	95.6	136	185	241	304	376	454	541	635	736	845	962
12	1.15	2.43	4.32	6.87	12.1	19.0	27.7	38.2	65.2	99.9	142	193	252	318	392	475	565	663	769	883	1004
13	1.20	2.53	4.49	7.15	12.6	19.7	28.8	39.8	67.8	104	148	201	262	331	408	494	588	690	800	919	1045
14	1.25	2.63	4.66	7.42	13.0	20.5	29.9	41.3	70.4	108	154	208	272	343	424	513	610	716	830	953	1085
15	1.29	2.72	4.83	7.68	13.5	21.2	30.9	42.8	72.8	112	159	216	281	355	439	531	631	741	860	987	1123
16	1.33	2.81	4.99	7.93	13.9	21.9	32.0	44.2	75.2	115	165	223	290	367	453	548	652	765	888	1019	1160
17	1.37	2.90	5.14	8.18	14.3	22.6	32.9	45.5	77.5	119	170	230	299	378	467	565	672	789	915	1051	1195
18	1.41	2.98	5.29	8.41	14.8	23.2	33.9	46.8	79.8	120	174	236	308	389	480	581	692	812	942	1081	1230
19	1.45	3.06	5.43	8.64	15.2	23.9	34.8	48.1	82.0	126	179	243	316	400	494	597	711	834	967	1111	1264
20	1.49	3.14	5.57	8.87	15.6	24.5	35.7	49.4	84.1	129	184	249	325	410	506	613	729	856	993	1139	1297
21	1.53	3.22	5.71	9.09	15.9	25.1	36.6	50.6	86.2	132	188	255	333	421	519	628	747	877	1017	1168	1329
22	1.56	3.29	5.85	9.30	16.3	25.7	37.5	51.8	88.2	135	193	261	341	430	531	643	765	898	1041	1195	1360
23	1.60	3.37	5.98	9.51	16.7	26.2	38.3	53.0	90.2	138	197	267	348	440	543	657	782	918	1064	1222	1390
24	1.63	3.44	6.11	9.72	17.0	26.8	39.1	54.1	92.1	141	201	273	356	450	555	671	799	937	1087	1248	1420
25	1.66	3.51	6.23	9.92	17.4	27.4	39.9	55.2	94.0	144	206	279	363	459	566	685	815	957	1110	1274	1450
26	1.70	3.58	6.36	10.1	17.7	27.9	40.7	56.3	95.9	147	210	284	370	468	577	699	831	976	1132	1299	1478
27	1.73	3.65	6.48	10.3	18.1	28.4	41.5	57.4	97.7	150	214	290	377	477	588	712	847	994	1153	1324	1507
28	1.76	3.72	6.60	10.5	18.4	29.0	42.3	58.4	99.5	153	218	295	384	486	599	725	863	1013	1174	1348	1534
29	1.79	3.78	6.71	10.7	18.7	29.5	43.0	59.5	101	155	221	300	391	494	610	738	878	1030	1195	1372	1561
30	1.82	3.85	6.83	10.9	19.1	30.0	43.7	60.5	103	158	225	305	398	503	620	750	893	1048	1216	1396	1588

L, in feet	Correction Factors For Other Pipe Lengths																							
20	1.49	1.63	1.58	1.53	1.47	1.42	1.37	1.34	1.28	1.24	1.20	1.16	1.16	1.14	1.13	1.11	1.10	1.10	1.09	1.08	1.08
30	1.44	1.41	1.39	1.36	1.32	1.29	1.27	1.24	1.21	1.18	1.15	1.13	1.12	1.11	1.10	1.09	1.08	1.08	1.07	1.06	1.06
40	1.41	1.27	1.25	1.23	1.21	1.20	1.18	1.17	1.14	1.12	1.11	1.10	1.09	1.08	1.07	1.06	1.06	1.05	1.05	1.05	1.04
50	1.16	1.16	1.15	1.14	1.13	1.12	1.11	1.10	1.09	1.08	1.07	1.06	1.06	1.05	1.05	1.04	1.04	1.04	1.04	1.01	1.03
60	1.07	1.07	1.07	1.06	1.06	1.05	1.05	1.05	1.04	1.04	1.03	1.03	1.03	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.01
70	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
80	.94	.94	.95	.95	.95	.96	.96	.96	.96	.97	.97	.97	.98	.98	.98	.98	.98	.98	.98	.99	.99
90	.89	.89	.90	.90	.91	.91	.92	.92	.93	.94	.94	.95	.95	.96	.96	.96	.97	.97	.97	.97	.94
100	.85	.85	.86	.86	.87	.88	.89	.89	.90	.91	.92	.93	.93	.94	.94	.95	.95	.95	.96	.96	.94
120	.78	.79	.79	.80	.81	.82	.83	.83	.85	.86	.87	.89	.89	.90	.91	.92	.92	.93	.93	.94	.92
140	.72	.73	.74	.75	.76	.77	.78	.79	.81	.82	.84	.85	.86	.87	.88	.89	.89	.90	.91	.91	.90
160	.68	.69	.69	.70	.71	.73	.74	.75	.77	.79	.80	.82	.83	.84	.85	.86	.87	.88	.89	.89	

Figure 5.12
Pipe Flow Chart; "n" = 0.013 (USDA - NRCS)

PIPE FLOW CHART n = 0.013

FOR REINFORCED CONCRETE PIPE INLET $K_m = K_e + K_b = 1.00$ AND 70 FEET OF REINFORCED CONCRETE PIPE CONDUIT (full flow assumed)

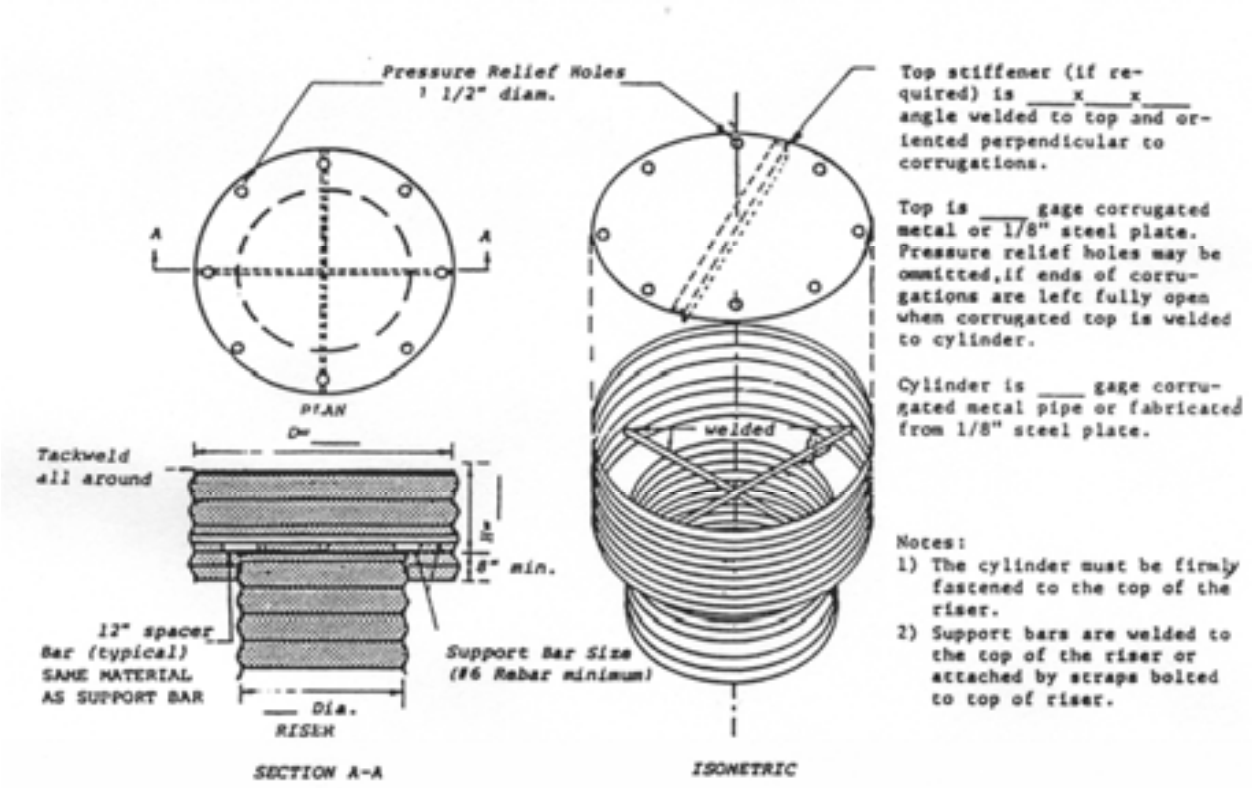
Note correction factors for pipe lengths other than 70 feet

diameter of pipe in inches

H, in feet	12"	15"	18"	21"	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	90"	96"	102"
1	3.22	5.44	8.29	11.8	15.9	26.0	38.6	53.8	71.4	91.5	114	139	167	197	229	264	302	342
2	4.55	7.69	11.7	16.7	22.5	36.8	54.6	76.0	101	129	161	197	236	278	324	374	427	483
3	5.57	9.42	14.4	20.4	27.5	45.0	66.9	93.1	124	159	198	241	289	341	397	458	523	592
4	6.43	10.9	16.6	23.5	31.8	52.0	77.3	108	143	183	228	278	334	394	459	529	604	683
5	7.19	12.2	18.5	26.3	35.5	58.1	86.4	120	160	205	255	311	373	440	513	591	675	764
6	7.88	13.3	20.3	28.8	38.9	63.7	94.6	132	175	224	280	341	409	482	562	647	739	837
7	8.51	14.4	21.9	31.1	42.0	68.8	102	142	189	242	302	368	441	521	607	699	798	904
8	9.10	15.4	23.5	33.3	44.9	73.5	109	152	202	259	323	394	472	557	685	748	854	966
9	9.65	16.3	24.9	35.3	47.7	78.0	116	161	214	275	342	418	500	590	688	793	905	1025
10	10.2	17.2	26.2	37.2	50.2	82.2	122	170	226	289	361	440	527	622	725	836	954	1080
11	10.7	18.0	27.5	39.0	52.7	86.2	128	178	237	304	379	462	553	653	761	877	1001	1133
12	11.1	18.9	28.7	40.8	55.0	90.1	134	186	247	317	395	482	578	682	794	916	1045	1184
13	11.6	19.6	29.9	42.4	57.3	93.7	139	194	257	330	411	502	601	710	827	953	1088	1232
14	12.0	20.4	31.0	44.1	59.4	97.3	145	201	267	342	427	521	624	736	858	989	1129	1278
15	12.5	21.1	32.1	45.6	61.5	101	150	208	277	354	442	539	646	762	888	1024	1169	1323
16	12.9	21.8	33.2	47.1	63.5	104	155	215	286	366	457	557	667	787	917	1057	1207	1367
17	13.3	22.4	34.2	48.5	65.5	107	159	222	294	377	471	574	688	812	946	1090	1244	1409
18	13.7	23.1	35.2	49.9	67.4	110	164	228	303	388	484	591	708	835	973	1121	1280	1450
19	14.0	23.7	36.1	51.3	69.2	113	168	234	311	399	497	607	727	858	1000	1152	1315	1489
20	14.4	24.3	37.1	52.6	71.0	116	173	240	319	409	510	623	746	880	1026	1182	1350	1528
21	14.7	24.9	38.0	53.9	72.8	119	177	246	327	419	523	638	764	902	1051	1211	1383	1566
22	15.1	25.5	38.9	55.2	74.5	122	181	252	335	429	535	653	782	923	1076	1240	1415	1603
23	15.4	26.1	39.8	56.5	76.2	125	186	258	342	439	547	668	800	944	1100	1268	1447	1639
24	15.8	26.7	40.6	57.7	77.8	127	189	263	350	448	559	682	817	964	1123	1295	1478	1674
25	16.1	27.2	41.5	58.9	79.4	130	193	269	357	458	571	696	834	984	1147	1322	1509	1708
26	16.4	27.7	42.3	60.0	81.0	133	197	274	364	467	582	710	850	1004	1169	1348	1539	1742
27	16.7	28.3	43.1	61.2	82.5	135	201	279	371	476	593	723	867	1023	1192	1373	1568	1775
28	17.0	28.8	43.9	62.3	84.1	138	204	285	378	484	604	737	883	1041	1214	1399	1597	1808
29	17.3	29.3	44.7	63.4	85.5	140	208	290	384	493	615	750	898	1060	1235	1423	1625	1840
30	17.6	29.8	45.4	64.5	87.0	142	212	294	391	501	625	763	913	1078	1256	1448	1653	1871

L, in feet	Correction Factors for Other Pipe Lengths																	
20	1.30	1.24	1.21	1.18	1.15	1.12	1.10	1.08	1.07	1.06	1.05	1.05	1.04	1.04	1.03	1.03	1.03	1.03
30	1.22	1.18	1.15	1.13	1.12	1.09	1.08	1.06	1.05	1.05	1.04	1.04	1.03	1.03	1.03	1.02	1.02	1.02
40	1.15	1.13	1.11	1.10	1.08	1.07	1.05	1.05	1.04	1.03	1.03	1.03	1.02	1.02	1.02	1.02	1.02	1.02
50	1.09	1.08	1.07	1.06	1.05	1.04	1.04	1.03	1.03	1.02	1.02	1.02	1.02	1.01	1.01	1.01	1.01	1.01
60	1.04	1.04	1.03	1.03	1.03	1.02	1.02	1.02	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
70	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
80	.96	.97	.97	.97	.98	.98	.98	.99	.99	.99	.99	.99	.99	.99	.99	.99	.99	.99
90	.93	.94	.94	.95	.95	.96	.97	.97	.98	.98	.98	.98	.98	.98	.99	.99	.99	.99
100	.90	.91	.92	.93	.93	.95	.95	.96	.97	.97	.97	.98	.98	.98	.98	.98	.98	.99
120	.84	.86	.87	.89	.90	.91	.93	.94	.94	.95	.96	.96	.96	.97	.97	.97	.97	.98
140	.80	.82	.83	.85	.86	.88	.90	.91	.92	.93	.94	.94	.95	.95	.96	.96	.96	.97
160	.76	.78	.80	.82	.83	.84	.88	.89	.90	.91	.92	.93	.94	.94	.95	.95	.95	.96

Figure 5.13
Concentric Trash Rack and Anti-Vortex Device (USDA - NRCS)



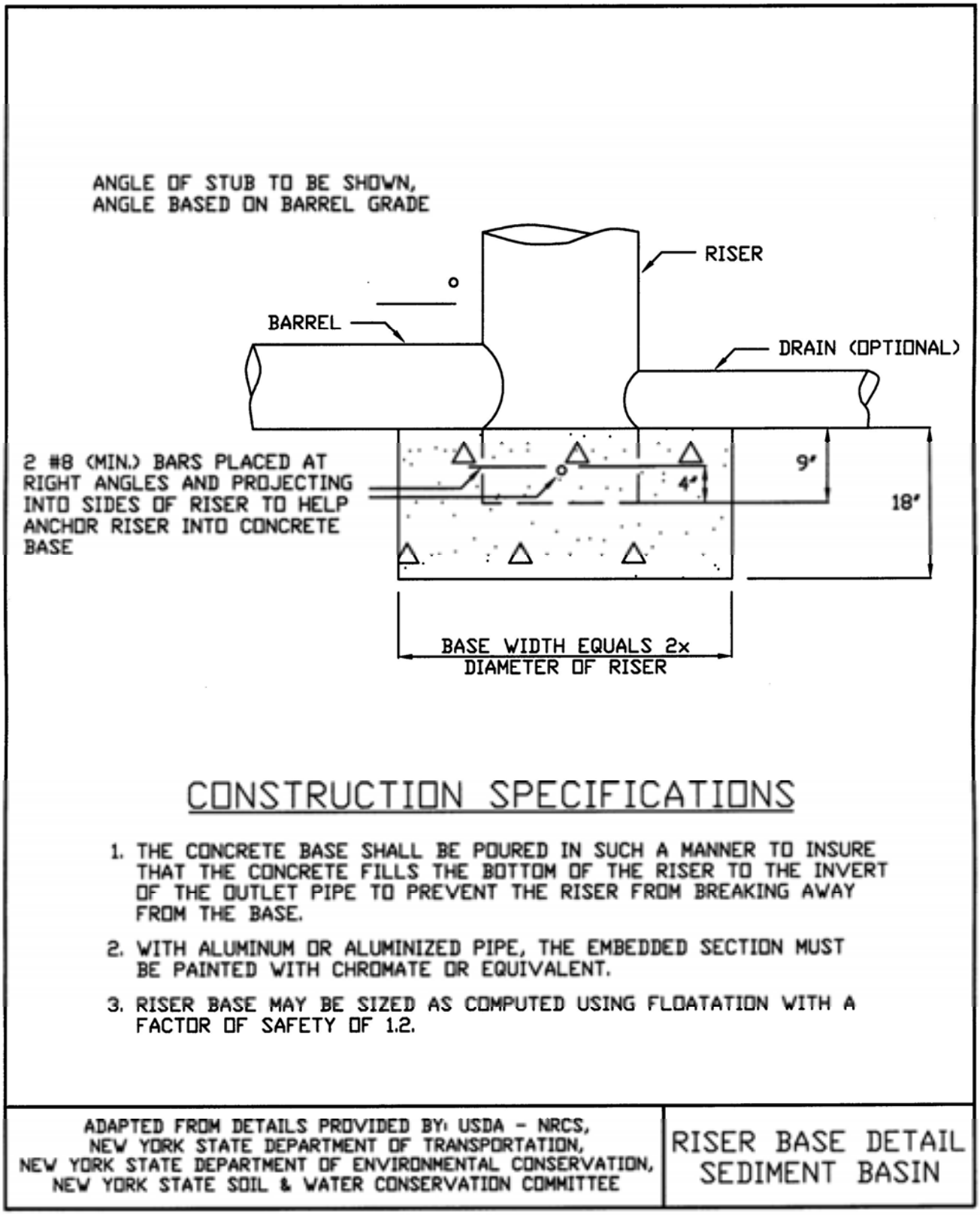
CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE
(not to scale)

Figure 5.14
Concentric Trash Rack and Anti-Vortex Device Design Table
(USDA - NRCS)

Riser Diam.(in)	Cylinder Diam (in.)	Thick. Gage	H (in.)	Minimum Size Support Bar	Minimum Top Thickness	Minimum Top Stiffener
12	18	16	6	#6 Rebar	16 ga.	—
15	21	16	7	#6 Rebar	16 ga.	—
18	27	16	8	#6 Rebar	16 ga.	—
21	30	16	11	#6 Rebar	16 ga.	—
24	36	16	13	#6 Rebar	14 ga.	—
27	42	16	15	#6 Rebar	14 ga.	—
36	54	14	17	#8 Rebar	12 ga.	—
42	60	14	19	#8 Rebar	12 ga.	—
48	72	12	21	1 1/4" pipe or 1 1/4x1 1/4x1/4 angle	10 ga.	—
54	78	12	25	See 48" Riser	10 ga.	—
60	90	12	29	1 1/2" pipe or 1 1/2x1 1/2x1/2 angle	8 ga.	—
66	96	10	33	2" pipe or 2x2x3/16 angle	8 ga. w/stiffener	2x2x1/4 angle
72	102	10	36	———See 66" Riser———		2 1/2x2 1/2x1/4 angle
78	114	10	39	2 1/2" pipe or 2x2x1/4 angle	See 72" Riser	See 72" Riser
84	120	10	42	2 1/2" pipe or 2 1/2x2 1/2x1/4 angle	See 72" Riser	2 1/2x 5/16 angle

Note: The criteria for sizing the cylinder is that the area between the inside of the cylinder and the outside of the riser is equal to or greater than the area inside the riser. Therefore, the above table is invalid for use with concrete pipe risers.

Figure 5.15
Riser Base Details



CONSTRUCTION SPECIFICATIONS

1. THE CONCRETE BASE SHALL BE POURED IN SUCH A MANNER TO INSURE THAT THE CONCRETE FILLS THE BOTTOM OF THE RISER TO THE INVERT OF THE OUTLET PIPE TO PREVENT THE RISER FROM BREAKING AWAY FROM THE BASE.
2. WITH ALUMINUM OR ALUMINIZED PIPE, THE EMBEDDED SECTION MUST BE PAINTED WITH CHROMATE OR EQUIVALENT.
3. RISER BASE MAY BE SIZED AS COMPUTED USING FLOATATION WITH A FACTOR OF SAFETY OF 1.2.

ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE	RISER BASE DETAIL SEDIMENT BASIN

Figure 5.16
Anti-Seep Collar Design

This procedure provides the anti-seep collar dimensions for only temporary sediment basins to increase the seepage length by 15% for various pipe slopes, embankment slopes and riser heights.

The first step in designing anti-seep collars is to determine the length of pipe within the saturated zone of the embankment. This can be done graphically or by the following equation, assuming that the upstream slope of the embankment intersects the invert of the pipe at its upstream end. (See embankment-invert intersection on the drawing below:

$$L_s = y\,(z + 4)\left[1 + \frac{\text{pipe slope}}{0.25 - \text{pipe slope}}\right]$$

Where: L_s = length of pipe in the saturated zone (ft.)

y = distance in feet from upstream invert of pipe to highest normal water level expected to occur during the life of the structure, usually the top of the riser.

z = slope of upstream embankment as a ratio of z ft. horizontal to one ft. vertical.

pipe slope = slope of pipe in feet per foot.

This procedure is based on the approximation of the phreatic line as shown in the drawing below:

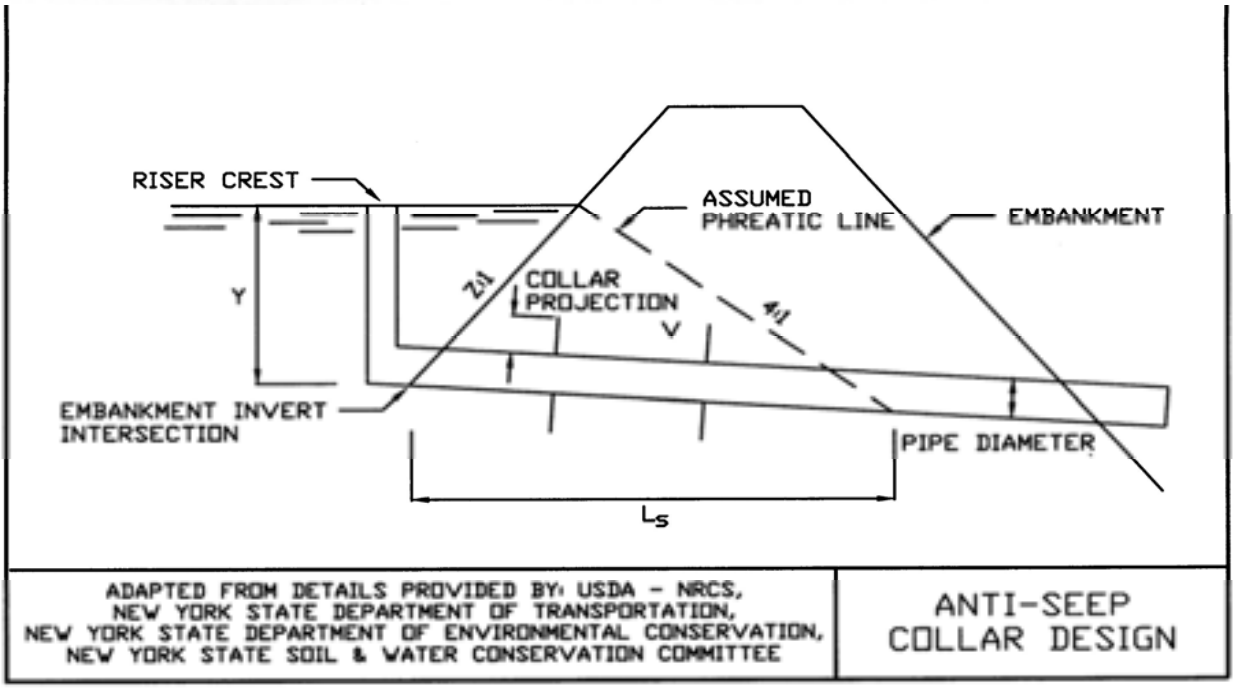


Figure 5.17
Anti-Seep Collar Design Charts (USDA - NRCS)

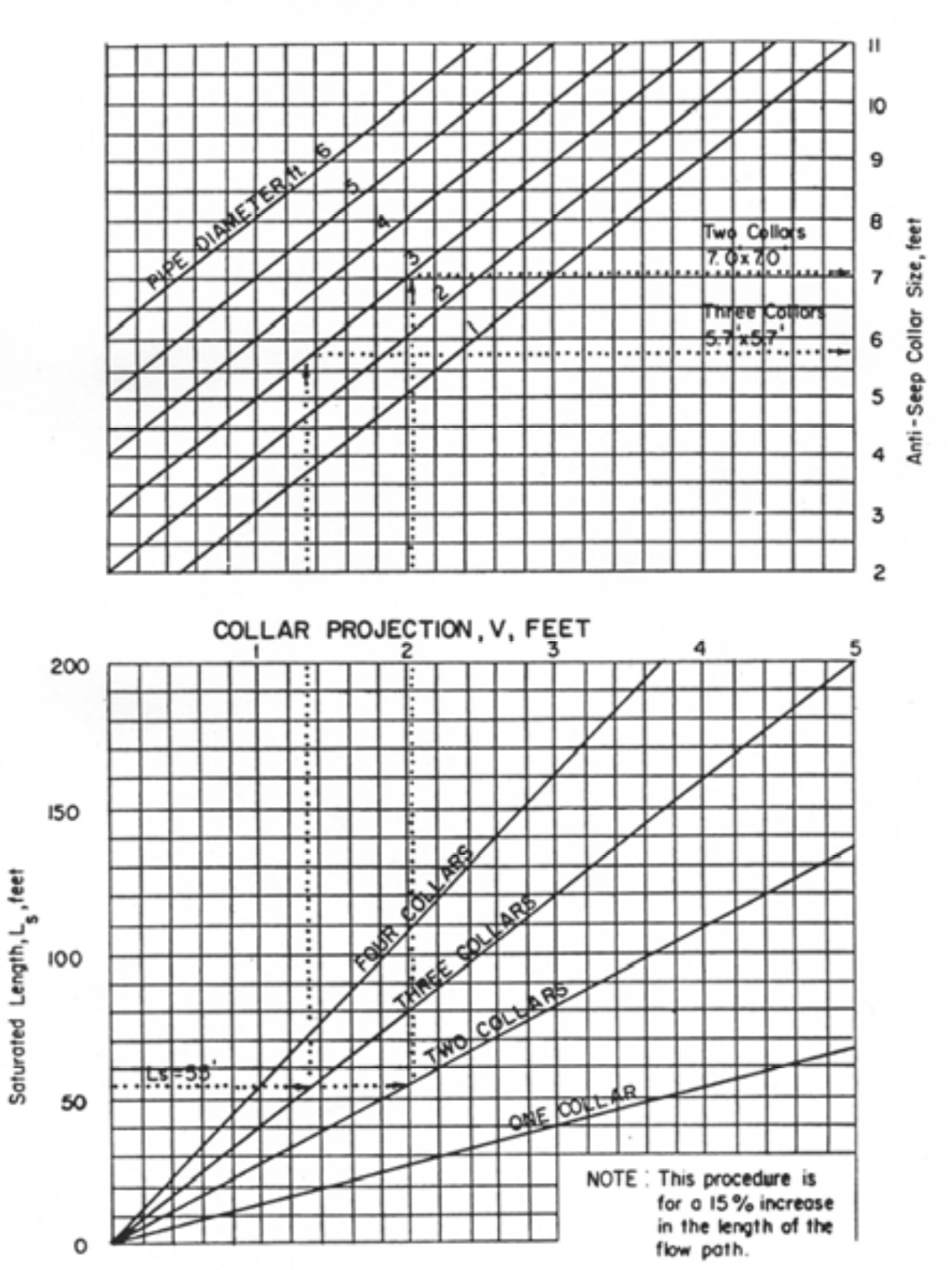


Figure 5.18
Anti-Seep Collar

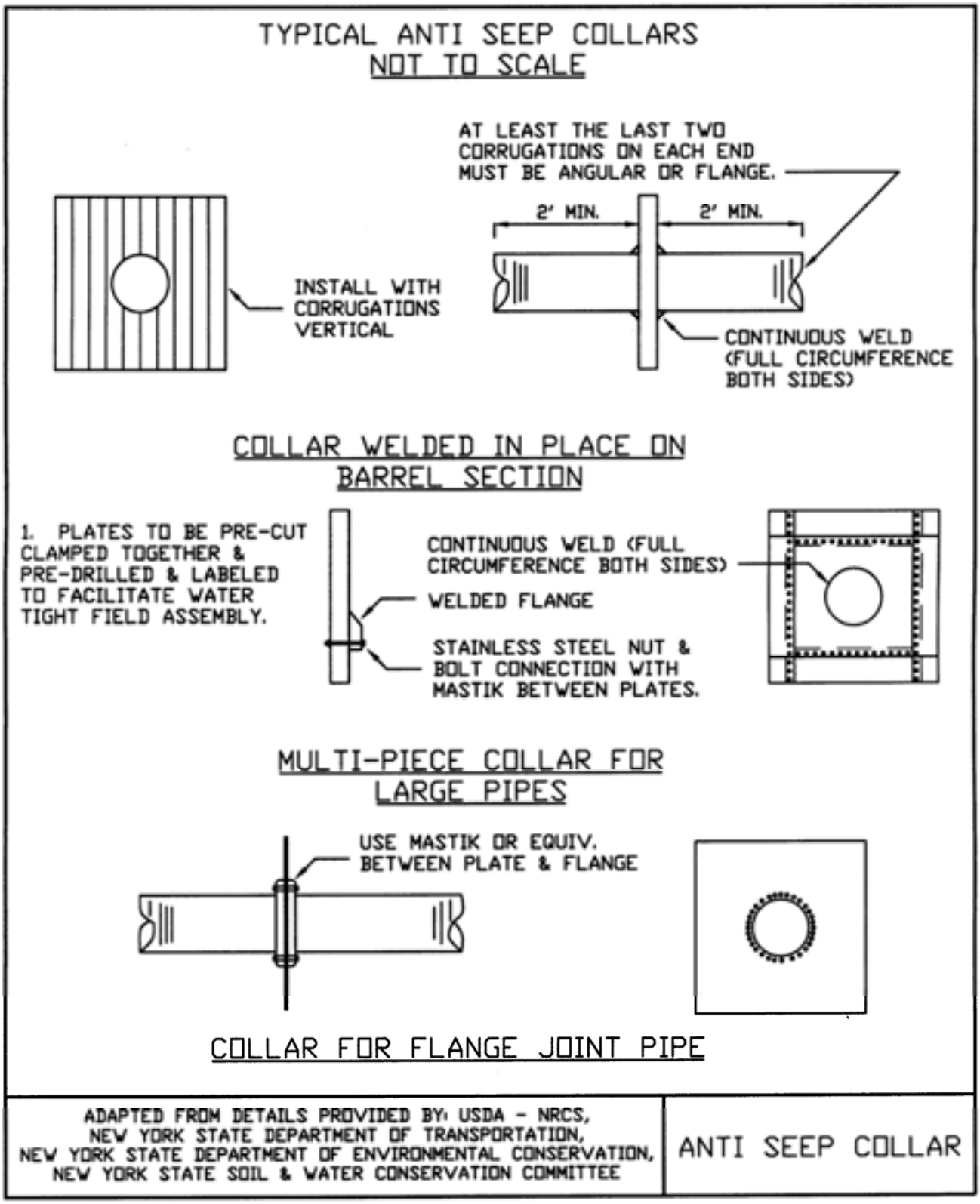
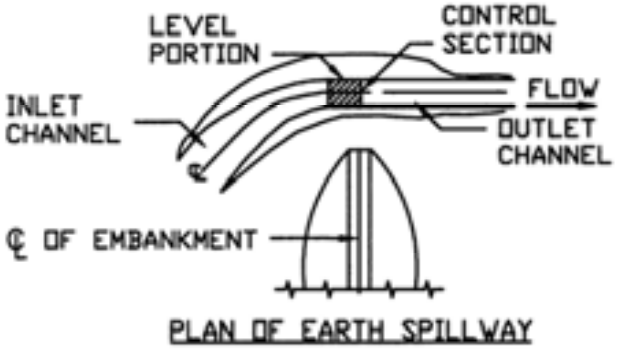
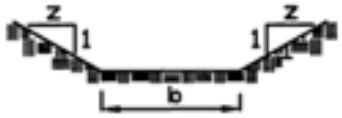


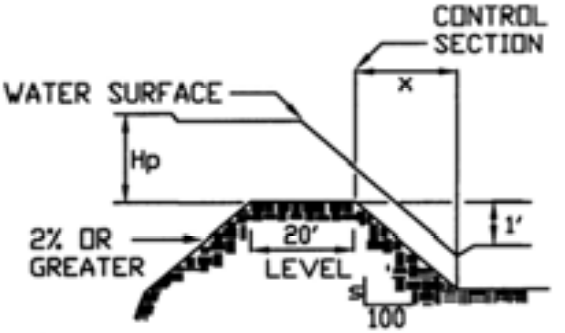
Figure 5.19
Design Data for Earth Spillways



PLAN OF EARTH SPILLWAY



CROSS SECTION OF EARTH SPILLWAY AT CONTROL SECTION



PROFILE ALONG CENTERLINE OF EARTH SPILLWAY

LEGEND

n = MANNING'S COEFFICIENT OF ROUGHNESS.

Hp = DIFFERENCE IN ELEVATION BETWEEN CREST OF EARTH SPILLWAY AT THE CONTROL SECTION AND WATER SURFACE IN RESERVOIR, IN FEET.

b = BOTTOM WIDTH OF EARTH SPILLWAY AT THE CONTROL SECTION, IN FEET.

Q = TOTAL DISCHARGE, IN cfs.

V = VELOCITY, IN FEET PER SECOND, THAT WILL EXIST IN CHANNEL BELOW CONTROL SECTION, AT DESIGN Q, IF CONSTRUCTED TO SLOPE (S) THAT IS SHOWN.

S = FLATTEST SLOPE (S), IN %, ALLOWABLE FOR CHANNEL BELOW CONTROL SECTION.

X = MINIMUM LENGTH OF CHANNEL BELOW CONTROL SECTION, IN FEET.

z = SIDE SLOPE RATIO.

NOTES:

1) FOR A GIVEN Hp A DECREASE IN THE EXIT SLOPE FROM S AS GIVEN IN THE TABLE DECREASES SPILLWAY DISCHARGE BUT INCREASING THE EXIT SLOPE FROM S DOES NOT INCREASE DISCHARGE. IF AN EXIT SLOPE (Se) STEEPER THAN S IS USED, THEN VELOCITY (Ve) IN THE EXIT CHANNEL WILL INCREASE ACCORDING TO THE FOLLOWING RELATIONSHIP:

$$Ve = V\left(\frac{Se}{S}\right)0.3$$

2) DATA TO RIGHT OF HEAVY VERTICAL LINES ON DRAWINGS SHOULD BE USED WITH CAUTION, AS THE RESULTING SECTIONS WILL BE EITHER POORLY PROPORTIONED OR HAVE VELOCITIES IN EXCESS OF 6 FT/SEC.

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

DESIGN DATA FOR EARTH SPILLWAYS

Figure 5.20
Design Table for Vegetated Earth Spillways in Erosion Resistant Soils, K=0.1 - 0.35, Side Slopes = 3:1

Discharge Q CFS	Slope Range Minimum Percent	Slope Range Maximum Percent	Bottom Width Feet	Stage Feet
15	3.3	12.2	8	.83
	3.5	18.2	12	.69
20	3.1	8.9	8	.97
	3.2	13.0	12	.81
	3.3	17.3	16	.70
25	2.9	7.1	8	1.09
	3.2	9.9	12	.91
	3.3	13.2	16	.79
	3.3	17.2	20	.70
30	2.9	6.0	8	1.20
	3.0	8.2	12	1.01
	3.0	10.7	16	.88
	3.3	13.8	20	.78
35	2.8	5.1	8	1.30
	2.9	6.9	12	1.10
	3.1	9.0	16	.94
	3.1	11.3	20	.85
	3.2	14.1	24	.77
40	2.7	4.5	8	1.40
	2.9	6.0	12	1.18
	2.9	7.6	16	1.03
	3.1	9.7	20	.91
	3.1	11.9	24	.83
45	2.6	4.1	8	1.49
	2.8	5.3	12	1.25
	2.9	6.7	16	1.09
	3.0	8.4	20	.98
	3.0	10.4	24	.89
50	2.7	3.7	8	1.57
	2.8	4.7	12	1.33
	2.8	6.0	16	1.16
	2.9	7.3	20	1.03
	3.1	9.0	24	.94
60	2.6	3.1	8	1.73
	2.7	3.9	12	1.47
	2.7	4.8	16	1.28
	2.9	5.9	20	1.15
	2.9	7.3	24	1.05
	3.0	8.6	28	.97
70	2.5	2.8	8	1.88
	2.6	3.3	12	1.60
	2.6	4.1	16	1.40
	2.7	5.0	20	1.26
	2.8	6.1	24	1.15
	2.9	7.0	28	1.05
80	2.5	2.9	12	1.72
	2.6	3.6	16	1.51
	2.7	4.3	20	1.35

Discharge Q CFS	Slope Range Minimum Percent	Slope Range Maximum Percent	Bottom Width Feet	Stage Feet
80	2.8	5.2	24	1.24
	2.8	5.9	28	1.14
	2.9	7.0	32	1.06
90	2.5	2.6	12	1.84
	2.5	3.1	16	1.61
	2.6	3.8	20	1.45
	2.7	4.5	24	1.32
	2.8	5.3	28	1.22
	2.8	6.1	32	1.14
100	2.5	2.8	16	1.71
	2.6	3.3	20	1.54
	2.6	4.0	24	1.41
	2.7	4.8	28	1.30
	2.7	5.3	32	1.21
	2.8	6.1	36	1.13
120	2.5	2.8	20	1.71
	2.6	3.2	24	1.56
	2.7	3.8	28	1.44
	2.7	4.2	32	1.34
	2.7	4.8	36	1.26
140	2.5	2.7	24	1.71
	2.5	3.2	28	1.58
	2.6	3.6	32	1.47
	2.6	4.0	36	1.38
	2.7	4.5	40	1.30
160	2.5	2.7	28	1.70
	2.5	3.1	32	1.58
	2.6	3.4	36	1.49
	2.6	3.8	40	1.40
	2.7	4.3	44	1.33
180	2.4	2.7	32	1.72
	2.4	3.0	36	1.60
	2.5	3.4	40	1.51
	2.6	3.7	44	1.43
200	2.5	2.7	36	1.70
	2.5	2.9	40	1.60
	2.5	3.3	44	1.52
	2.6	3.6	48	1.45
220	2.4	2.6	40	1.70
	2.5	2.9	44	1.61
	2.5	3.2	48	1.53
240	2.5	2.6	44	1.70
	2.5	2.9	48	1.62
	2.6	3.2	52	1.54
260	2.4	2.6	48	1.70
	2.5	2.9	52	1.62
280	2.4	2.6	52	1.70
300	2.5	2.6	56	1.69

Figure 5.21
Design Table for Vegetated Earth Spillways in Very Erodible Soils, K = 0.36 - 0.80, Side Slopes = 3:1
(USDA - NRCS)

Discharge Q CFS	Slope Range		Bottom Width Feet	Stage Feet
	Minimum Percent	Maximum Percent		
10	3.5	4.7	8	.68
15	3.4	4.4	12	.69
	3.4	5.9	16	.60
20	3.3	3.3	12	.80
	3.3	4.1	16	.70
	3.5	5.3	20	.62
25	3.3	3.3	16	.79
	3.3	4.0	20	.70
	3.5	4.9	24	.64
30	3.3	3.3	20	.78
	3.3	4.0	24	.71
	3.4	4.7	28	.65
	3.4	5.5	32	.61
35	3.2	3.2	24	.77
	3.3	3.9	28	.71
	3.5	4.6	32	.66
	3.5	5.2	36	.62
40	3.3	3.3	28	.76
	3.4	3.8	32	.71
	3.4	4.4	36	.67
	3.4	5.0	40	.64
45	3.3	3.3	32	.76
	3.4	3.8	36	.71
	3.4	4.3	40	.67
	3.4	4.8	44	.64
50	3.3	3.3	36	.75
	3.3	3.8	40	.71
	3.3	4.3	44	.68
60	3.2	3.2	44	.75
	3.2	3.7	48	.72
70	3.3	3.3	52	.75
80	3.1	3.1	56	.78

Procedure for Determining or Altering Sediment Basin Shape

As specified in the Standard and Specification, the pool area at the elevation of the crest of the principal spillway shall have a length to width ratio of at least 2.0 to 1. The purpose of this requirement is to minimize the "short circuiting" effect of the sediment laden inflow to the riser and thereby increase the effectiveness of the sediment basin. The purpose of this procedure is to prescribe the parameters, procedures, and methods of determining and modifying the shape of the basin.

The length of the flow path (L) is the distance from the point of inflow to the riser (outflow point). The point of inflow is the point that the stream enters the normal pool (pool level at the riser crest elevation). The pool area (A) is the area of the normal pool. The effective width (W_e) is found by the equation:

$$W_e = A/L \text{ and L:W ratio} = L/W_e$$

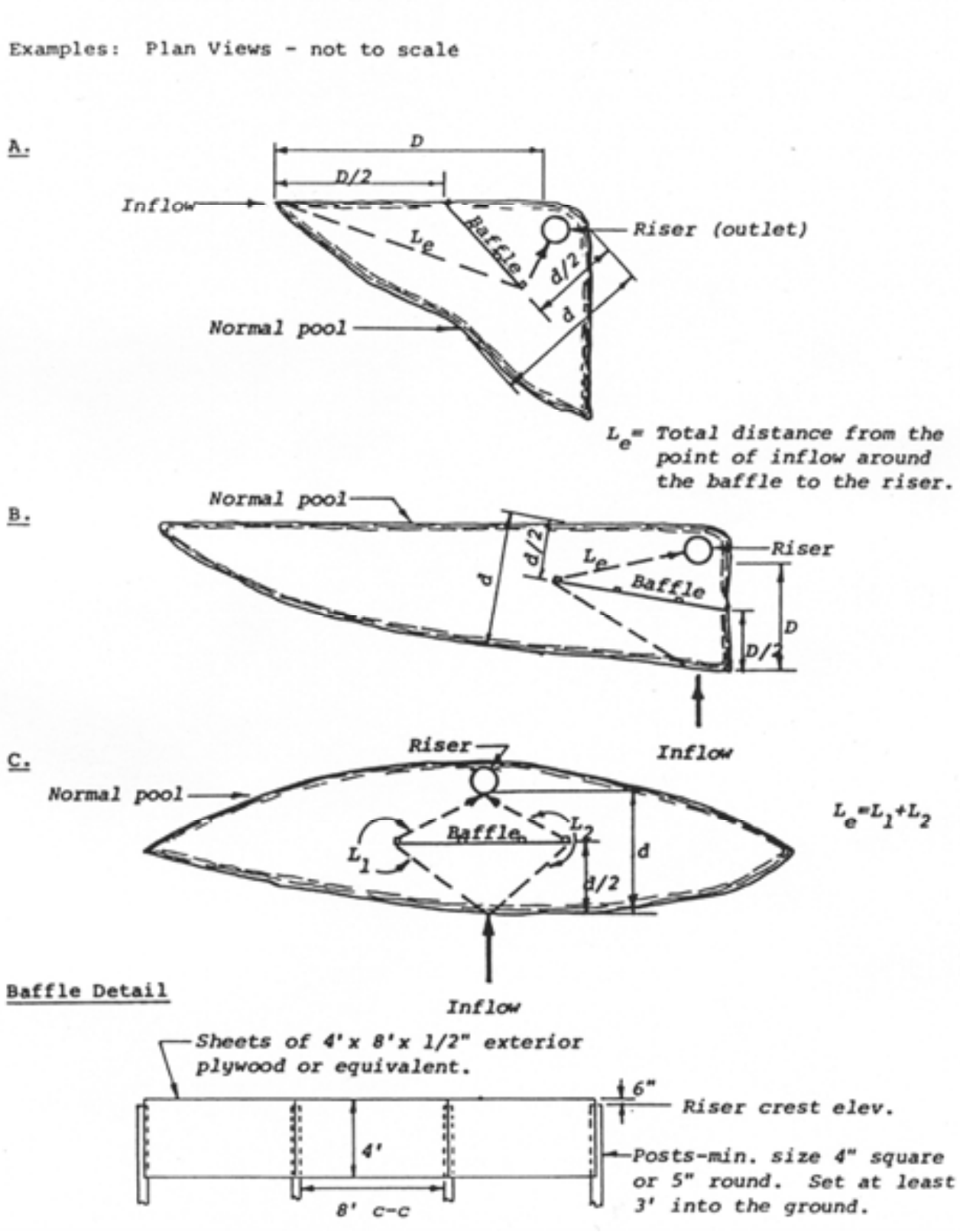
In the event there is more than one inflow point, any inflow point that conveys more than 30 percent of the total peak inflow rate shall meet the length to width ratio criteria.

The required basin shape may be obtained by proper site selection, by excavation, or by constructing a baffle in the basin. The purpose of the baffle is to increase the effective flow length from the inflow point to the riser. Baffles (see Figure 5.22 on following page) shall be placed midway between the inflow point around the end of the baffle to the outflow point. Then:

$$W_e = A/L_e \text{ and L:W ratio} = L_e/W_e$$

Three examples are shown on the following page. Note that for the special case in example C the water is allowed to go around both ends of the baffle and the effective length, $L_e = L_1 + L_2$. Otherwise, the length to width ratio computations are the same as shown above. This special case procedure for computing L_e is allowable only when the two flow paths are equal, i.e., when $L_1 = L_2$. A baffle detail is also shown in Figure 5.22 on page 5.41.

Figure 5.22
Sediment Basin Baffle Details (USDA - NRCS)



STANDARD AND SPECIFICATIONS FOR SEDIMENT DIKE

Definition & Scope

A **temporary** earth dike with an excavated trench on the upslope toe placed across a slope to capture sediment laden flow from small disturbed drainage areas and allowing sediment to settle out by ponding.

Condition Where Practice Applies

This practice can be used on slopes and in areas where it is difficult to place and maintain silt fence. This practice acts as a smaller sediment trap for linear type applications. This practice will handle sheet and rill erosion for small tributary areas.

Design Criteria

1. The earth dike will be a maximum of 2 feet high with a 2 foot top width and 2:1 side slopes.

2. All earth fill will be placed on a stripped foundation, contain no stumps or woody material, and be compacted with the weight of the excavator bucket.

3. The interior capture trench will be a minimum 1.5 feet deep, 2 feet wide, with 1:1 side slopes and with a near level bottom. In areas where linear slopes exceed 4% the sediment dike system shall be segmented to maintain capture volume and ponding.

4. The system shall be used with a minimum 5 foot vegetated buffer on the down slope toe of the dike or an artificial buffer of erosion control matting.

5. The maximum ponding depth behind the dike shall be 1/2 the height of the constructed dike at its lowest elevation.

6. The ends of the dike system shall terminate with a 90º return of NYS DOT #1A crushed stone to filter any excess flow.

7. The maximum drainage area tributary to this practice shall not exceed 0.5 acres per 100 feet of dike, for slopes less than 10%. For slopes greater than 10%, the drainage area shall be 0.25 acres per 100 feet of dike.

8. The earthen dike shall be seeded and mulched to prevent erosion using an annual rye grass mixture at a rate of 1 lb. per 1, 000 square feet.

Maintenance

1. No traffic will be allowed on the dike.

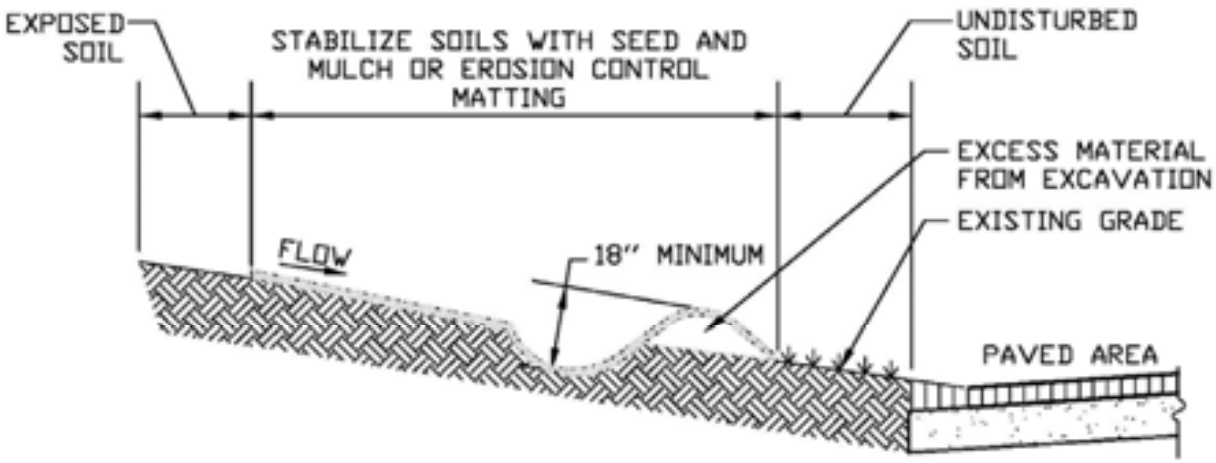
2. Dike system will be inspected weekly and after each runoff event.

3. Sediment in the system will be removed when the interior trench has filled to 75% capacity.

4. Sediment will be disposed of on-site as specified in the Erosion and Sediment Control Plan.

5. Upon stabilization of the tributary drainage area, the trench will be filled, excess dike fill removed, and the area graded and stabilized in accordance with the Erosion and Sediment Control Plan.

Figure 5.23
Sediment Dike



CONSTRUCTION NOTES:

1. ALL EARTH FILL WILL BE PLACED ON A STRIPPED FOUNDATION, CONTAIN NO STUMPS OR WOODY MATERIAL, AND BE COMPACTED WITH THE WEIGHT OF THE EXCAVATOR BUCKET.

2. THE SYSTEM SHALL BE USED WITH A MINIMUM 5 FOOT VEGETATED BUFFER ON THE DOWN SLOPE TOE OF THE DIKE OR AN ARTIFICIAL BUFFER OF EROSION CONTROL MATTING.

3. THE ENDS OF THE DIKE SYSTEM SHALL TERMINATE WITH A 90 DEGREE RETURN OF NYS DOT #1A CRUSHED STONE TO FILTER ANY EXCESS FLOW.

4. THE EARTHEN DIKE SHALL BE SEEDED AND MULCHED TO PREVENT EROSION USING AN ANNUAL RYE GRASS MIXTURE AT A RATE OF 1 LB. PER 1,000 SQUARE FEET.

ADAPTED FROM DETAILS PROVIDED BY: KEN BARBER, BARBER ENGINEERING	SEDIMENT DIKE

STANDARD AND SPECIFICATIONS FOR SEDIMENT TANK - PORTABLE

Definition & Scope

A sediment tank is a compartmented tank or vessel container to which sediment laden water is pumped to trap and retain the sediment prior to releasing the water to drainageways, and rights-of-way below the sediment tank site.

Conditions Where Practice Applies

A sediment tank is to be used on sites where excavations are deep, and space is limited, such as urban construction, where direct discharge of sediment laden water to stream and storm drainage systems is to be avoided.

Design Criteria

Location

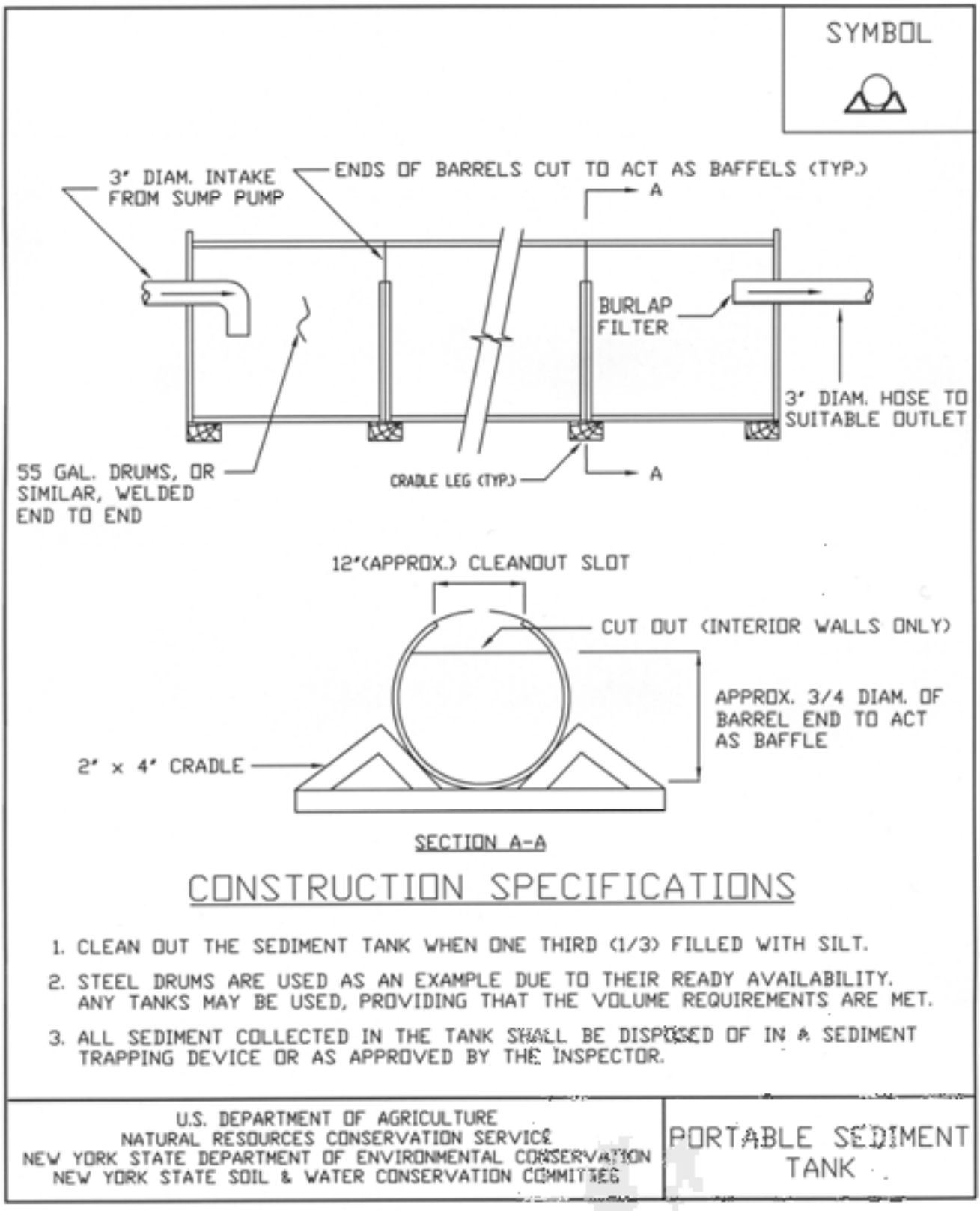
The sediment tank shall be located for ease of clean-out and disposal of the trapped sediment, and to minimize the interference with construction activities and pedestrian traffic.

Tank Size

The following formula should be used in determining the storage volume of the sediment tank; pump discharge (G.P.M.) x 16 = Cubic Foot Storage.

An example of a typical sediment tank is shown on Figure 5.24 on page 5.45. Other container designs can be used if the storage volume is adequate and approval is obtained from the local approving agency. Commercially manufactured tanks are also available.

Figure 5.24
Portable Sediment Tank



STANDARD AND SPECIFICATIONS FOR SEDIMENT TRAP

Definition & Scope

A **temporary** sediment control device formed by excavation and/or embankment to intercept sediment-laden runoff and trap the sediment in order to protect drainageways, properties, and rights-of-way below the sediment trap from sedimentation.

Conditions Where Practice Applies

A sediment trap is usually installed in a drainageway, at a storm drain inlet, or other points of collection from a disturbed area for one construction season.

Sediment traps should be used to artificially break up the natural drainage area into smaller sections where a larger device (sediment basin) would be less effective.

Design Criteria

If the drainage area to the proposed trap location exceeds 5 acres, or the trap is in place beyond one construction season, or any of the additional design criteria presented here cannot be met, a full Sediment Basin must be used. See Standard and Specification for Sediment Basin on page 5.19.

Drainage Area

The maximum drainage area for all sediment traps shall be 5 acres.

Location

Sediment traps shall be located so that they can be installed prior to grading or filling in the drainage area they are to protect. Traps must **not be located any closer than 20 feet** from a proposed building foundation if the trap is to function during building construction. Locate traps to obtain maximum storage benefit from the terrain and for ease of cleanout and disposal of the trapped sediment.

Trap Size

The volume of a sediment trap as measured at the elevation of the crest of the outlet shall be at least 3,600 cubic feet per acre of drainage area. A minimum length to width ratio of 2:1 should be provided. The volume of a constructed trap shall be calculated using standard mathematical procedures. The volume of a natural sediment trap may be approximated by the equation: Volume (cu.ft.) = 0.4 x surface area (sq.ft.) x maximum depth (ft.).

Trap Cleanout

Sediment shall be removed and the trap restored to the original dimensions when the sediment has accumulated to ½ of the design depth of traps I-II, and 1/3 the depth for trap III. Sediment removed from the trap shall be deposited in a protected area and in such a manner that it will not erode.

Embankment

All earth embankments for sediment traps shall not exceed five (5) feet in height as measured at the low point of the original ground along the centerline of the embankment. Embankments shall have a minimum four (4) foot wide top and side slopes of 2:1 or flatter. The embankment shall be compacted by traversing with equipment while it is being constructed. The embankment shall be stabilized with seed and mulch as soon as it is completed

The elevation of the top of any dike directing water to any sediment trap will equal or exceed the maximum height of the outlet structure along the entire length of the trap.

Excavation

All excavation operations shall be carried out in such a manner that erosion and water pollution shall be minimal. Excavated portions of sediment traps shall have 1:1 or flatter slopes.

Outlet

The outlet shall be designed, constructed, and maintained in such a manner that sediment does not leave the trap and that erosion at or below the outlet does not occur.

Sediment traps must outlet onto stabilized (preferable undisturbed) ground, into a watercourse, stabilized channel, or into a storm drain system. Distance between inlet and outlet should be maximized to the longest length practicable.

All traps must be seeded and mulched immediately after construction.

Trap Details Needed on Erosion and Sediment Control Plans

Each trap shall be delineated on the plans in such a manner that it will not be confused with any other features. Each trap on a plan shall indicate all the information necessary to properly construct and maintain the structure. If the drawings are such that this information cannot be delineated on the drawings, then a table shall be developed. If a table is developed, then each trap on a plan shall have a number and the numbers shall be consecutive.

The following information shall be shown for each trap in a summary table format on the plans.

1. Trap number
2. Type of trap
3. Drainage area
4. Storage required
5. Storage provided (if applicable)
6. Outlet length or pipe sizes
7. Storage depth below outlet or cleanout elevation
8. Embankment height and elevation (if applicable)

Type of Sediment Traps

There are three (3) specific types of sediment traps which vary according to their function, location, or drainage area.

I. Pipe Outlet Sediment Trap
II. Stone Outlet Sediment Trap
III. Compost Filter Sock Sediment Trap

I. Pipe Outlet Sediment Trap

A Pipe Outlet Sediment Trap consists of a trap formed by embankment or excavation. The outlet for the trap is through a perforated riser and a pipe through the embankment. The outlet pipe and riser shall be made of steel, corrugated metal or other suitable material. The top of the embankment shall be at least 1 ½ feet above the crest of the riser. The preferred method of dewatering the sediment trap is by surface skimmer. See Dewatering Device Standard, page 5.10. If the riser alone is used for dewatering, the top 2/3 of the riser shall be perforated with one (1) inch nominal diameter holes or slits spaced six (6) inches vertically and horizontally placed in the concave portion of the corrugated pipe.

No holes or slits will be allowed within six (6) inches of the top of the horizontal barrel. All pipe connections shall be watertight. The riser shall be wrapped with ½ to ¼ inch hardware cloth wire then wrapped with filter cloth with a sieve size between #40-80 and secured with strapping or connecting band at the top and bottom of the cloth. The cloth shall cover an area at least six (6) inches above the highest hole and six (6) inches below the lowest hole. The top of the riser pipe shall not be covered with filter cloth. The riser shall have a base with sufficient weight to prevent flotation of the riser. Two approved bases are:

1. A concrete base 12 in. thick with the riser embedded 9 in. into the concrete base, or
2. One quarter inch, minimum, thick steel plate attached to the riser by a continuous weld around the circumference of the riser to form a watertight connection. The plate shall have 2.5 feet of stone, gravel, or earth placed on it to prevent flotation. In either case, each side of the square base measurement shall be the riser diameter plus 24 inches.

Pipe outlet sediment traps shall be limited to a five (5) acre maximum drainage area. Pipe outlet sediment trap is interchangeable in the field with stone outlet provided that these sediment traps are constructed in accordance with the detail and specifications for that trap.

Select pipe diameter from the following table:
See details for Pipe Outlet Sediment Trap ST-I in Figure 5.25 and 5.26 on pages 5.49 and 5.50.

Optional sediment trap dewatering devices are shown on Figure 5.29 on Page 5.53.

Minimum Sizes

Barrel Diameter[1] (in.)	Riser Diameter[1] (in.)	Maximum Drainage Area (ac.)
12	15	1
15	18	2
18	21	3
21	24	4
21	27	5

[1] Barrel diameter may be same size as riser diameter

II. Stone Outlet Sediment Trap

A Stone Outlet Sediment Trap consists of a trap formed by an embankment or excavation. The outlet of this trap is over a stone section placed on level ground. The minimum length (feet) of the outlet shall be equal to four (4) times the drainage area (acres).

Required storage shall be 3,600 cubic feet per acre of drainage area.

The outlet crest (top of stone in weir section) shall be level, at least one (1) foot below top of embankment and no more than one (1) foot above ground beneath the outlet. Stone used in the outlet shall be small riprap (4 in. x 8 in.). To provide more efficient trapping effect, a layer of filter cloth should be embedded one (1) foot back into the upstream face of the outlet stone or a one (1) foot thick layer of two (2) inch or finer aggregate shall be placed on the upstream face of the outlet.

Stone Outlet Sediment Traps may be interchangeable in the field with pipe outlet sediment traps provided they are constructed in accordance with the detail and specifications for those traps. Stone outlet sediment traps shall be limited to a five (5) acre maximum drainage area.

See details for Stone Outlet Sediment Trap ST-II in Figure 5.27 on page 5.51

III. Compost Sock Sediment Trap

A compost sock sediment trap consists of a trap formed by creating an enclosure of geotextile mesh tubes filled with a compost filter media. These traps are used in locations where there is no opportunity to direct runoff into larger traps or well vegetated areas. This could occur at site entrances and access points or in tight areas due to construction boundary limits.

Surface runoff can be directed to the trap with standard conveyance practices. Groundwater or surface ponding in low areas can be pumped into the compost sock sediment trap with appropriate energy dissipation at the pump outlet to prevent scour.

Design criteria for Compost Sock Sediment Trap

1. The maximum drainage area tributary to the trap shall be 5 acres.

2. The minimum settled height above ground shall be 2.0 feet formed by staking 3 compost filter socks in a pyramid as shown in Figure 5.28 on page 5.52.

3. The storage volume provided in the compost sock sediment trap shall be 3,600 cubic feet per tributary drainage acre.

4. If necessary, additional storage area can be created by excavating a sump 1 foot deep beginning at least 5 feet away from the inside sock.

5. All compost filter sock materials, mesh, and compost, will meet the material specifications listed in the Compost Filter Sock standard. No spillway is required.

6. Compost filter sock sediment traps shall be inspected weekly and after every rainfall event. Sediment shall be removed when it reaches one third, 1/3, the height of the trap.

7. The maximum limit of use for a compost sock sediment trap is one (1) year. The existing trap shall be replaced if there is a need for a trap beyond that time limit.

8. Upon completion of the work, the compost sock sediment trap shall be removed. The compost within the socks may be used during cleanup as a vegetative growth medium in accordance with the site stabilization plan.

Figure 5.25
Pipe Outlet Sediment Trap: ST-I

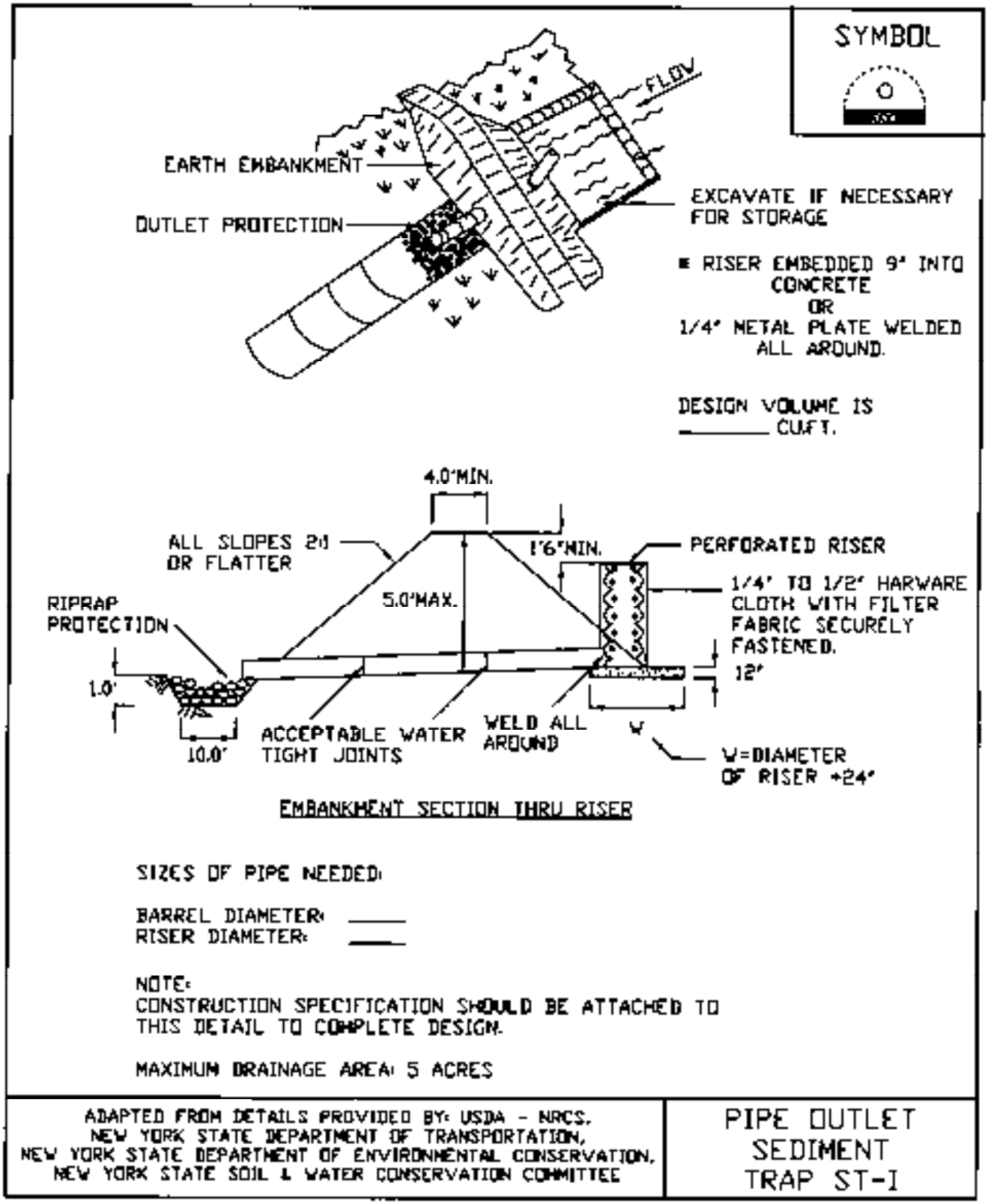


Figure 5.26
Pipe Outlet Sediment Trap: ST-I - Construction Specifications

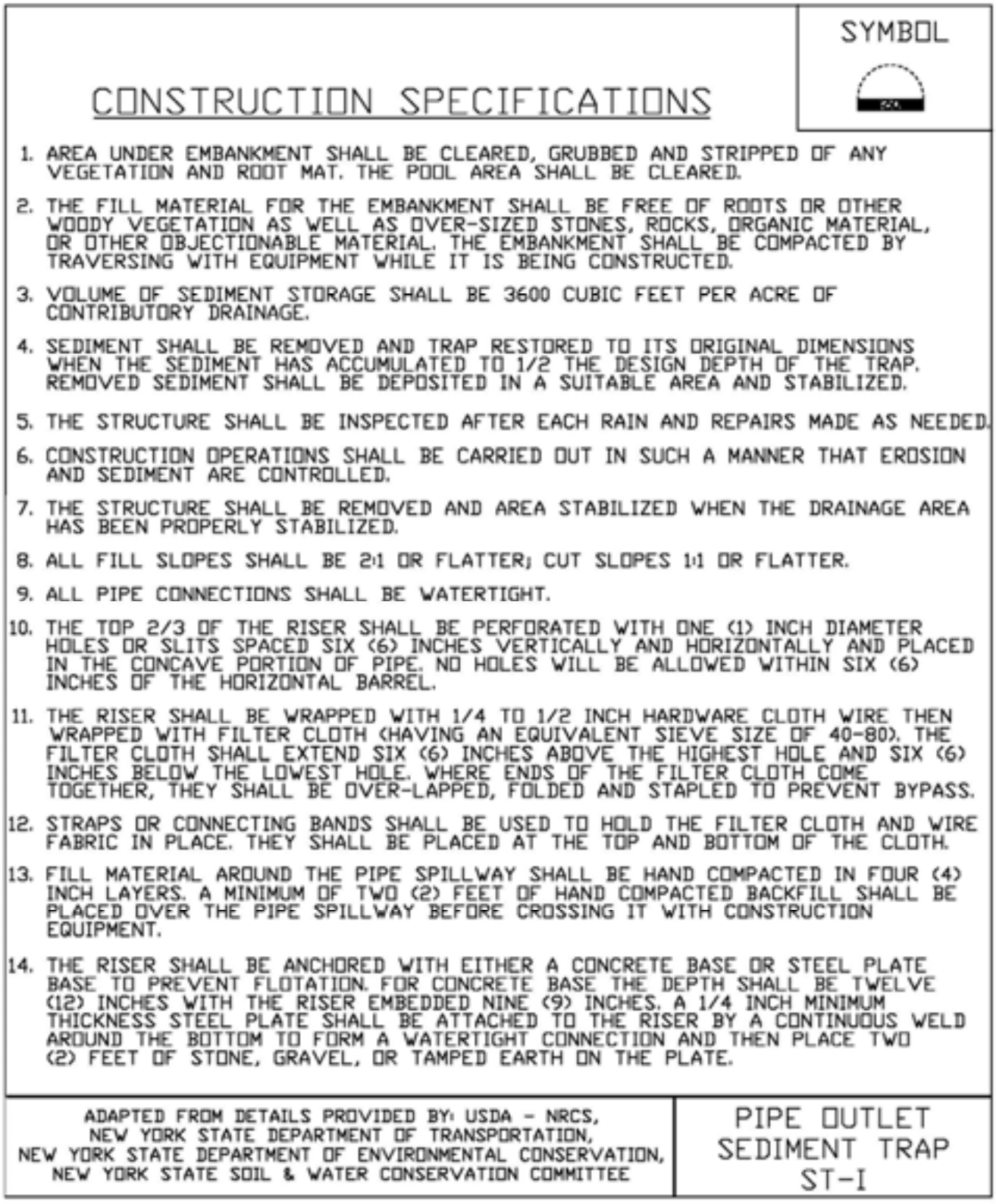
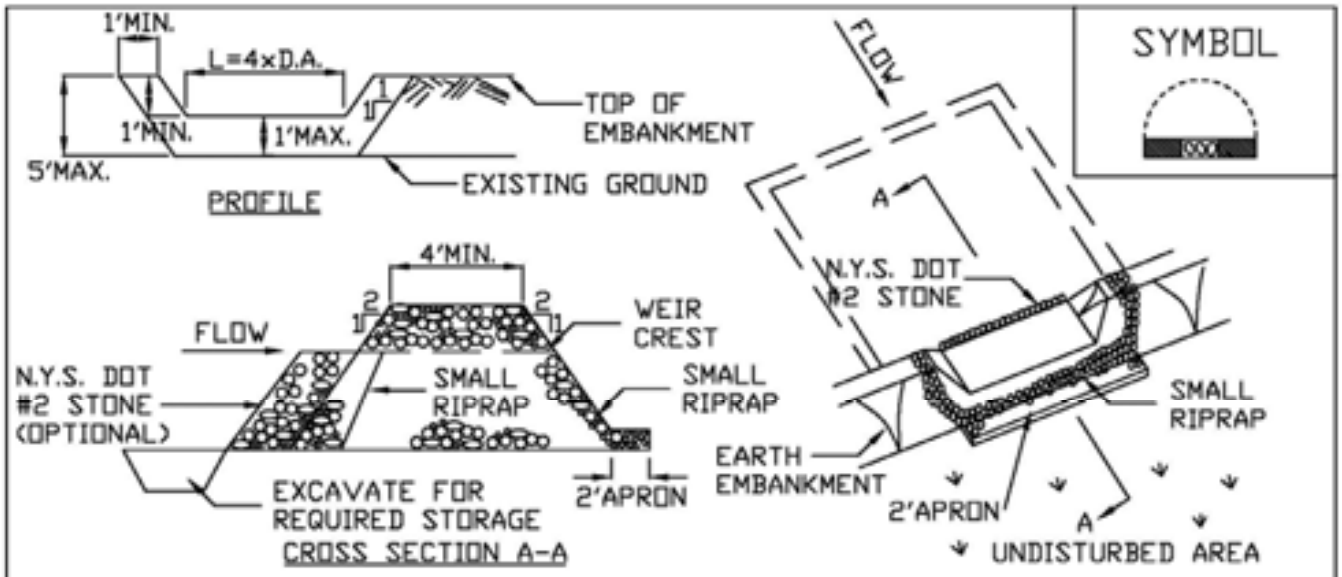


Figure 5.27
Stone Outlet Sediment Trap: ST-II



OPTION: A ONE FOOT LAYER OF N.Y.S. DOT #2 STONE MAY BE PLACED ON THE UPSTREAM SIDE OF THE RIPRAP INPLACE OF THE EMBEDDED FILTER CLOTH.

CONSTRUCTION SPECIFICATIONS

1. AREA UNDER EMBANKMENT SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOT MAT. THE POOL AREA SHALL BE CLEARED.
2. THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS AND OTHER WOODY VEGETATION AS WELL AS OVER-SIZED STONES, ROCKS, ORGANIC MATERIAL OR OTHER OBJECTIONABLE MATERIAL. THE EMBANKMENT SHALL BE COMPACTED BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
3. ALL CUT AND FILL SLOPES SHALL BE 2:1 OR FLATTER.
4. THE STONE USED IN THE OUTLET SHALL BE SMALL RIPRAP 4"-8" ALONG WITH A 1' THICKNESS OF 2" AGGREGATE PLACED ON THE UP-GRADE SIDE ON THE SMALL RIPRAP OR EMBEDDED FILTER CLOTH IN THE RIPRAP.
5. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP. IT SHALL BE PLACED ON SITE AND STABILIZED.
6. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.
7. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND SEDIMENT ARE CONTROLLED.
8. THE STRUCTURE SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

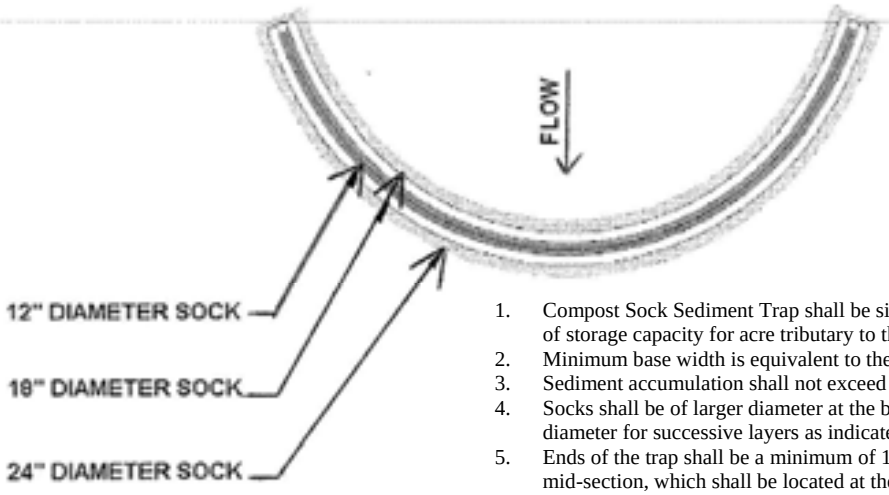
MAXIMUM DRAINAGE AREA 5 ACRES

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

STONE OUTLET SEDIMENT TRAP ST-II

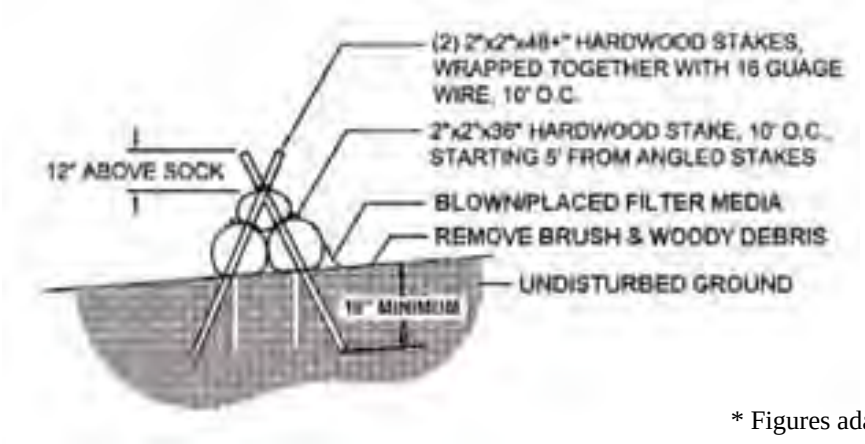
Figure 5.28
Compost Filter Sock Sediment Trap: ST-III

Plan View



1. Compost Sock Sediment Trap shall be sized to provide 3,600 cubic feet of storage capacity for acre tributary to the trap.
2. Minimum base width is equivalent to the height.
3. Sediment accumulation shall not exceed 1/3 the total height of the trap.
4. Socks shall be of larger diameter at the base of the trap and decrease in diameter for successive layers as indicated to the left.
5. Ends of the trap shall be a minimum of 1 foot higher in elevation that the mid-section, which shall be located at the point of discharge.

Staking Detail



* Figures adapted from Filtrexx

Specifications:

1. Sock infill and filter media material shall meet the standards of Table 5.1 on page 5.8 . Compost shall meet the compost filter sock standard of Table 5.2 on page 5.8.

2. Compost sock sediment traps shall not exceed three socks in height and shall be stacked in pyramidal form as shown above. Minimum trap height is one 24 inch diameter sock. Additional storage may be provided by means of an excavated sump 12 inches deep extending 1 to 3 feet upslope of the socks along the lower side of the trap.

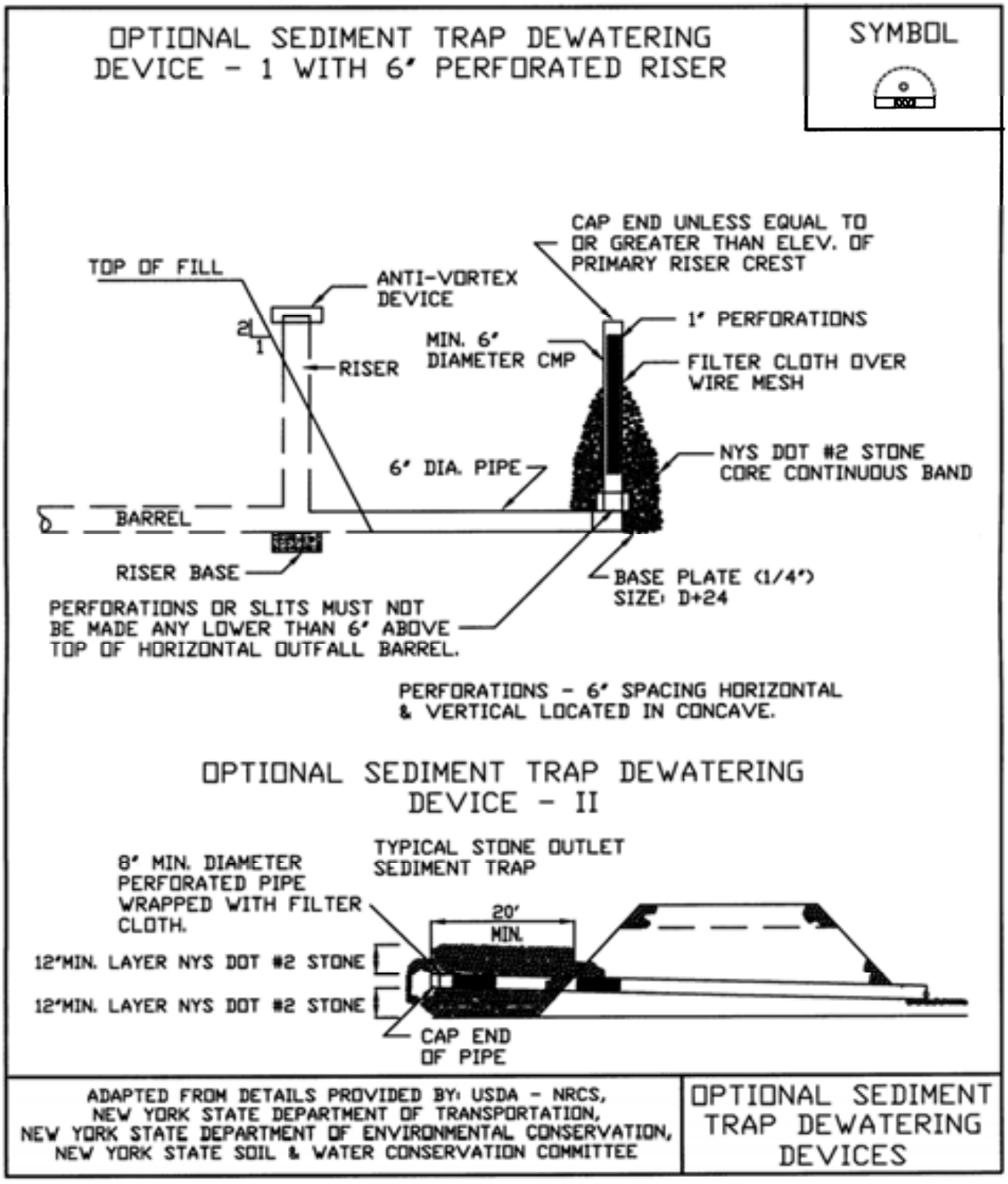
3. Compost sock sediment traps shall provide 3,600 cubic feet storage capacity with 12 inches of freeboard for each tributary drainage acreage. (See manufacturer for anticipated settlement.)

4. The maximum tributary drainage area is 5.0 acres. Since compost socks are "flow-through," no spillway is required.

5. Compost sock sediment traps shall be inspected weekly and after each runoff event. Sediment shall be removed when it reaches 1/3 the height of the socks.

6. Photodegradable and biodegradable socks shall not be used for more than 1 year.

Figure 5.29
Optional Sediment Trap Dewatering Devices
for Traps with <5 Acres Drainage Area



STANDARD AND SPECIFICATIONS FOR SILT FENCE

Definition & Scope

A **temporary** barrier of geotextile fabric installed on the contours across a slope used to intercept sediment laden runoff from small drainage areas of disturbed soil by temporarily ponding the sediment laden runoff allowing settling to occur. The maximum period of use is limited by the ultraviolet stability of the fabric (approximately one year).

Conditions Where Practice Applies

A silt fence may be used subject to the following conditions:

1. Maximum allowable slope length and fence length will not exceed the limits shown in the Design Criteria for the specific type of silt fence used ; and
2. Maximum ponding depth of 1.5 feet behind the fence; and
3. Erosion would occur in the form of sheet erosion; and
4. There is no concentration of water flowing to the barrier; and
5. Soil conditions allow for proper keying of fabric, or other anchorage, to prevent blowouts.

Design Criteria

1. Design computations are not required for installations of 1 month or less. Longer installation periods should be designed for expected runoff.
2. All silt fences shall be placed as close to the disturbed area as possible, but at least 10 feet from the toe of a slope steeper than 3H:1V, to allow for maintenance and roll down. The area beyond the fence must be undisturbed or stabilized.
3. The type of silt fence specified for each location on the plan shall not exceed the maximum slope length and maximum fence length requirements shown in the following table:

		Slope Length/Fence Length (ft.)		
Slope	Steepness	Standard	Reinforced	Super
<2%	< 50:1	300/1500	N/A	N/A
2-10%	50:1 to 10:1	125/1000	250/2000	300/2500
10-20%	10:1 to 5:1	100/750	150/1000	200/1000
20-33%	5:1 to 3:1	60/500	80/750	100/1000
33-50%	3:1 to 2:1	40/250	70/350	100/500
>50%	> 2:1	20/125	30/175	50/250

Standard Silt Fence (SF) is fabric rolls stapled to wooden stakes driven 16 inches in the ground.
Reinforced Silt Fence (RSF) is fabric placed against welded wire fabric with anchored steel posts driven 16 inches in the ground.
Super Silt Fence (SSF) is fabric placed against chain link fence as support backing with posts driven 3 feet in the ground.

4. Silt fence shall be removed as soon as the disturbed area has achieved final stabilization.

The silt fence shall be installed in accordance with the appropriate details. Where ends of filter cloth come together, they shall be overlapped, folded and stapled to prevent sediment bypass. Butt joints are not acceptable. A detail of the silt fence shall be shown on the plan. See Figure 5.30 on page 5.56 for Reinforced Silt Fence as an example of details to be provided.

Criteria for Silt Fence Materials

1. Silt Fence Fabric: The fabric shall meet the following specifications unless otherwise approved by the appropriate erosion and sediment control plan approval authority. Such approval shall not constitute statewide acceptance.

Fabric Properties	Minimum Acceptable Value	Test Method
Grab Tensile Strength (lbs)	110	ASTM D 4632
Elongation at Failure (%)	20	ASTM D 4632
Mullen Burst Strength (PSI)	300	ASTM D 3786
Puncture Strength (lbs)	60	ASTM D 4833
Minimum Trapezoidal Tear Strength (lbs)	50	ASTM D 4533
Flow Through Rate (gal/ min/sf)	25	ASTM D 4491
Equivalent Opening Size	40-80	US Std Sieve ASTM D 4751
Minimum UV Residual (%)	70	ASTM D 4355

2. Fence Posts (for fabricated units): The length shall be a minimum of 36 inches long. Wood posts will be of sound quality hardwood with a minimum cross sectional area of 3.5 square inches. Steel posts will be standard T and U section weighing not less than 1.00 pound per linear foot. Posts for super silt fence shall be standard chain link fence posts.

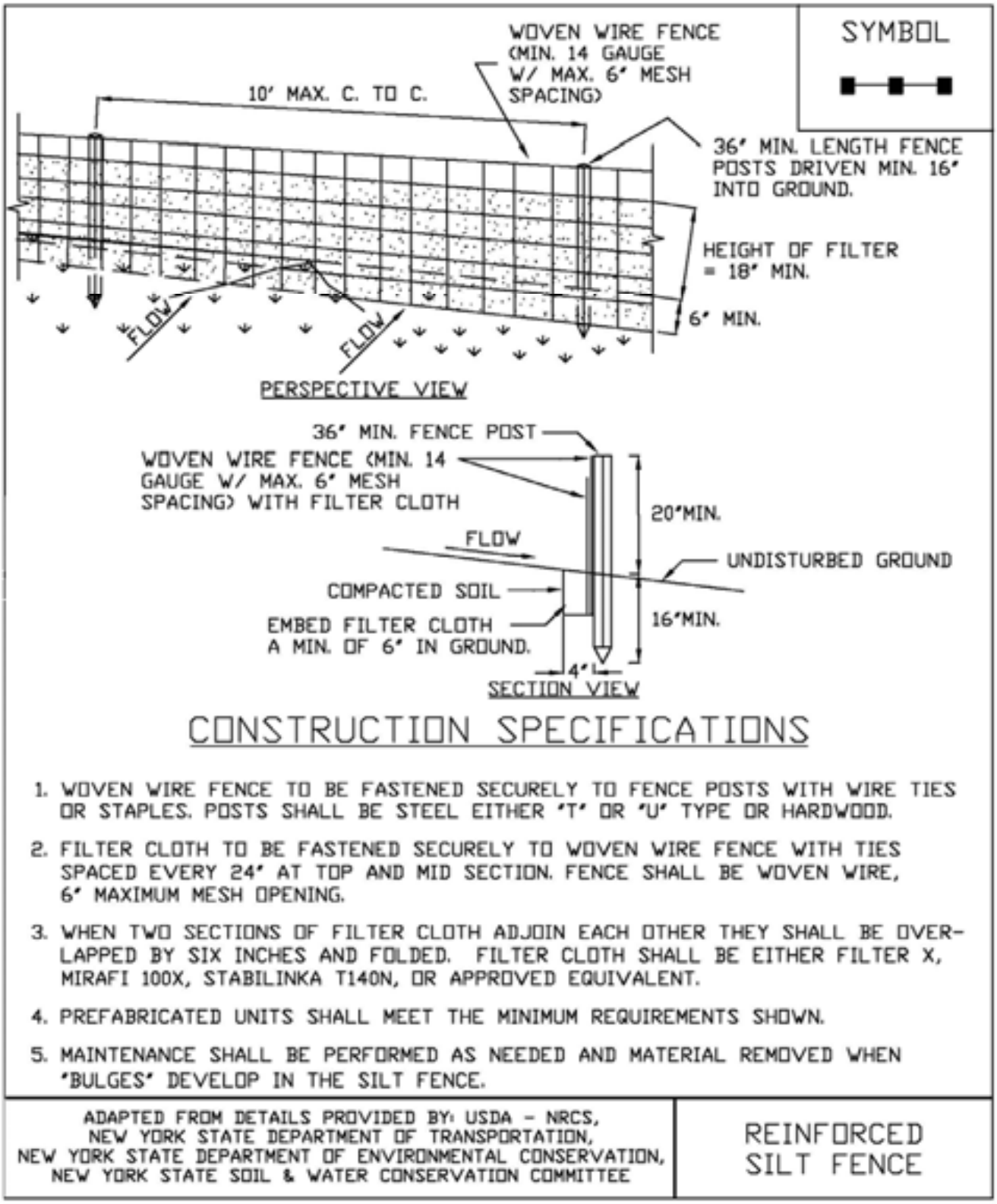
3. Wire Fence for reinforced silt fence: Wire fencing shall be a minimum 14 gage with a maximum 6 in. mesh opening, or as approved.

4. Prefabricated silt fence is acceptable as long as all material specifications are met.

Super Silt Fence

Reinforced Silt Fence

Figure 5.30
Reinforced Silt Fence



STANDARD AND SPECIFICATIONS FOR STORM DRAIN INLET PROTECTION

Definition & Scope

A **temporary** barrier with low permeability, installed around inlets in the form of a fence, berm or excavation around an opening, detaining water and thereby reducing the sediment content of sediment laden water by settling thus preventing heavily sediment laden water from entering a storm drain system.

Conditions Where Practice Applies

This practice shall be used where the drainage area to an inlet is disturbed, it is not possible to temporarily divert the storm drain outfall into a trapping device, and watertight blocking of inlets is not advisable. **It is not to be used in place of sediment trapping devices.** This practice shall be used with an upstream buffer strip if placed at a storm drain inlet on a paved surface. It may be used in conjunction with storm drain diversion to help prevent siltation of pipes installed with low slope angle.

Types of Storm Drain Inlet Practices

There are five (5) specific types of storm drain inlet protection practices that vary according to their function, location, drainage area, and availability of materials:

I. Excavated Drop Inlet Protection
II. Fabric Drop Inlet Protection
III. Stone & Block Drop Inlet Protection
IV. Paved Surface Inlet Protection
V. Manufactured Insert Inlet Protection

Design Criteria

Drainage Area – The drainage area for storm drain inlets shall not exceed one acre. Erosion control/temporary stabilization measures must be implemented on the disturbed drainage area tributary to the inlet. The crest elevations of these practices shall provide storage and minimize bypass flow.

Type I – Excavated Drop Inlet Protection

This practice is generally used during initial overlot grading after the storm drain trunk line is installed.

Limit the drainage area to the inlet device to 1 acre. Excavated side slopes shall be no steeper than 2:1. The minimum depth shall be 1 foot and the maximum depth 2 feet as measured from the crest of the inlet structure. Shape the excavated basin to fit conditions with the longest dimension oriented toward the longest inflow area to provide maximum trap efficiency. The capacity of the excavated basin should be established to contain 900 cubic feet per acre of disturbed area. Weep holes, protected by fabric and stone, should be provided for draining the temporary pool.

Inspect and clean the excavated basin after every storm. Sediment should be removed when 50 percent of the storage volume is achieved This material should be incorporated into the site in a stabilized manner.

Type II – Fabric Drop Inlet Protection

This practice is generally used during final elevation grading phases after the storm drain system is completed.

Limit the drainage area to 1 acre per inlet device. Land area slope immediately surrounding this device should not exceed 1 percent. The maximum height of the fabric above the inlet crest shall not exceed 1.5 feet unless reinforced.

The top of the barrier should be maintained to allow overflow to drop into the drop inlet and not bypass the inlet to

unprotected lower areas. Support stakes for fabric shall be a minimum of 3 feet long, spaced a maximum 3 feet apart. They should be driven close to the inlet so any overflow drops into the inlet and not on the unprotected soil. Improved performance and sediment storage volume can be obtained by excavating the area.

Inspect the fabric barrier after each rain event and make repairs as needed. Remove sediment from the pool area as necessary with care not to undercut or damage the filter fabric. Upon stabilization of the drainage area, remove all materials and unstable sediment and dispose of properly. Bring the adjacent area of the drop inlet to grade, smooth and compact and stabilize in the appropriate manner to the site.

Type III – Stone and Block Drop Inlet Protection

This practice is generally used during the initial and intermediate overlot grading of a construction site.

Limit the drainage area to 1 acre at the drop inlet. The stone barrier should have a minimum height of 1 foot and a maximum height of 2 feet. Do not use mortar. The height should be limited to prevent excess ponding and bypass flow.

Recess the first course of blocks at least 2 inches below the crest opening of the storm drain for lateral support. Subsequent courses can be supported laterally if needed by placing a 2x4 inch wood stud through the block openings perpendicular to the course. The bottom row should have a few blocks oriented so flow can drain through the block to dewater the basin area.

The stone should be placed just below the top of the blocks on slopes of 2:1 or flatter. Place hardware cloth of wire mesh with ½ inch openings over all block openings to hold stone in place.

As an optional design, the concrete blocks may be omitted and the entire structure constructed of stone, ringing the outlet (“doughnut”). The stone should be kept at a 3:1 slope toward the inlet to keep it from being washed into the inlet. A level area 1 foot wide and four inches below the crest will further prevent wash. Stone on the slope toward the inlet should be at least 3 inches in size for stability and 1 inch or smaller away from the inlet to control flow rate. The elevation of the top of the stone crest must be maintained 6 inches lower than the ground elevation down slope from the inlet to ensure that all storm flows pass over the stone into the storm drain and not past the structure. Temporary diking should be used as necessary to prevent bypass flow.

The barrier should be inspected after each rain event and repairs made where needed. Remove sediment as necessary to provide for accurate storage volume for subsequent rains. Upon stabilization of contributing drainage area, remove all materials and any unstable soil and dispose of properly.

Bring the disturbed area to proper grade, smooth, compact and stabilize in a manner appropriate to the site.

Type IV – Paved Surface Inlet Protection

This practice is generally used after pavement construction has been done while final grading and soil stabilization is occurring. These practices should be used with upstream buffer strips in linear construction applications, and with temporary surface stabilization for overlot areas, to reduce the sediment load at the practice. This practice includes sand bags, compost filter socks, geo-tubes filled with ballast, and manufactured surface barriers. Pea gravel can also be used in conjunction with these practices to improve performance. When the inlet is not at a low point, and is offset from the pavement or gutter line, protection should be selected and installed so that flows are not diverted around the inlet.

The drainage area should be limited to 1 acre at the drain inlet. All practices will be placed at the inlet perimeter or beyond to maximize the flow capacity of the inlet. Practices shall be weighted, braced, tied, or otherwise anchored to prevent movement or shifting of location on paved surfaces. Traffic safety shall be integrated with the use of this practice. All practices should be marked with traffic safety cones as appropriate. Structure height shall not cause flooding or by-pass flow that would cause additional erosion.

The structure should be inspected after every storm event. Any sediment should be removed and disposed of on the site. Any broken or damaged components should be replaced. Check all materials for proper anchorage and secure as necessary.

Type V - Manufactured Insert Inlet Protection

The drainage area shall be limited to 1 acre at the drain inlet. All inserts will be installed and anchored in accordance with the manufacturers recommendations and design details. The fabric portion of the structure will equal or exceed the performance standard for the silt fence fabric. The inserts will be installed to preserve a minimum of 50 percent of the open, unobstructed design flow area of the storm drain inlet opening to maintain capacity for storm events.

Figure 5.31
Excavated Drop Inlet Protection

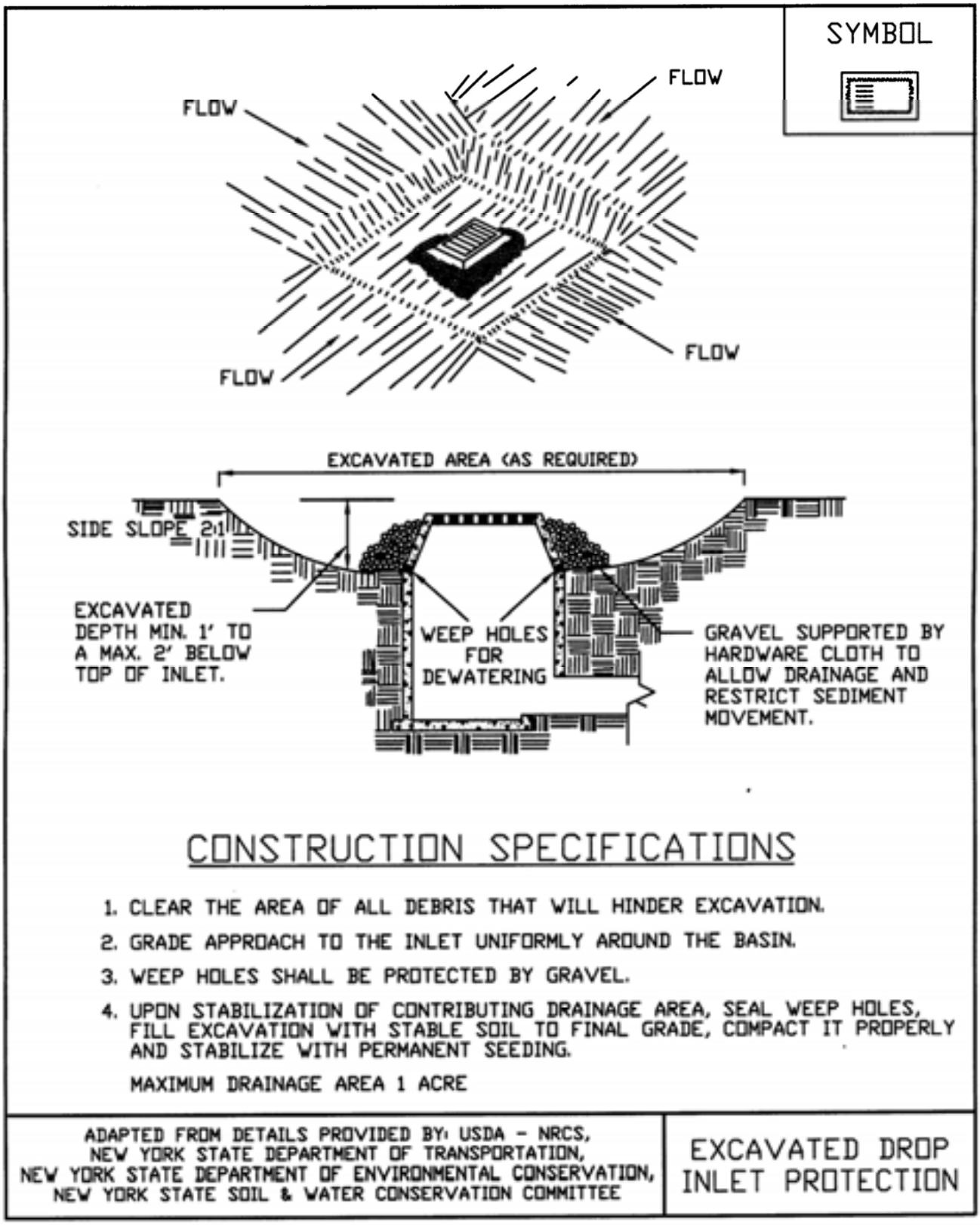


Figure 5.32
Fabric Drop Inlet Protection

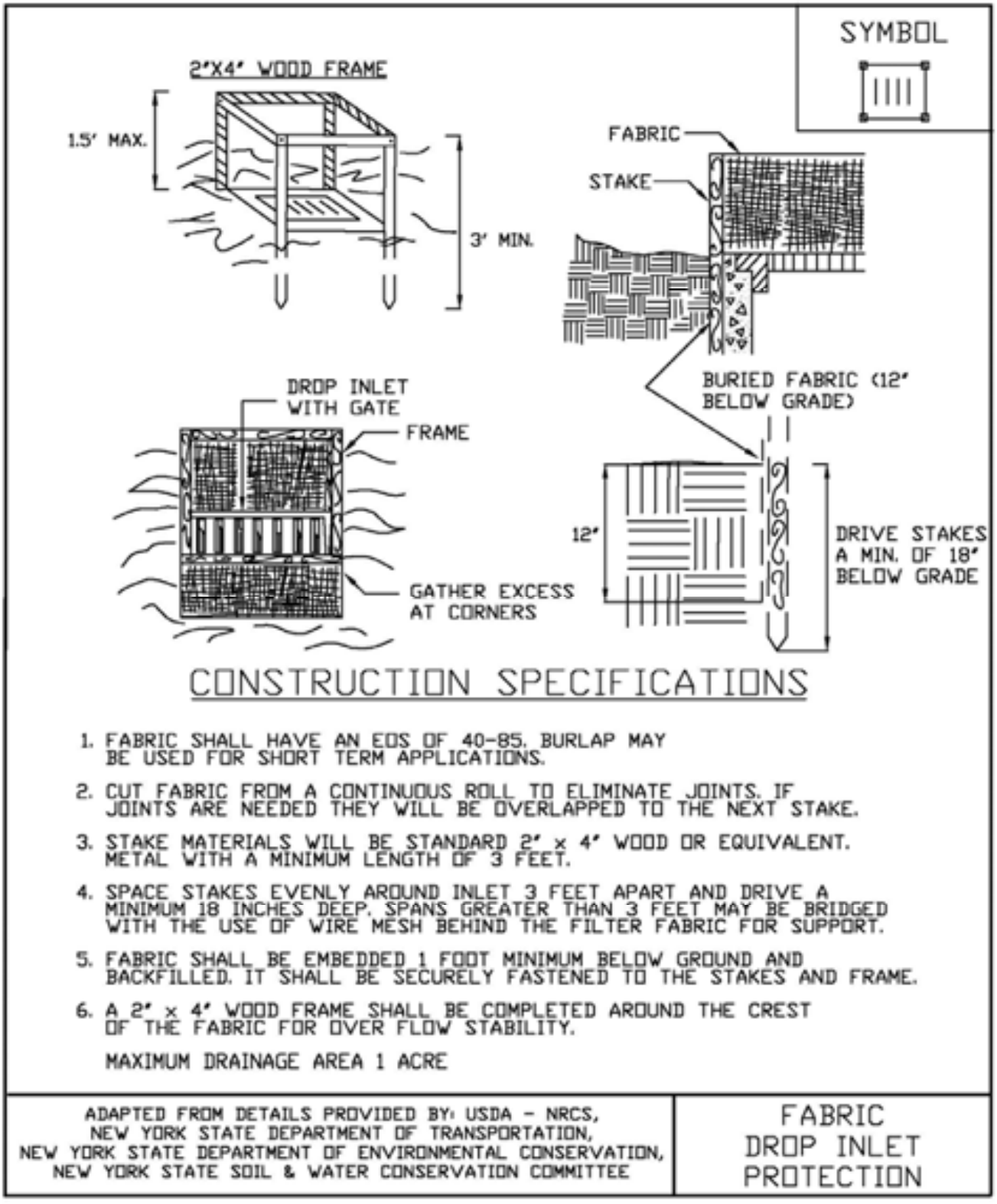
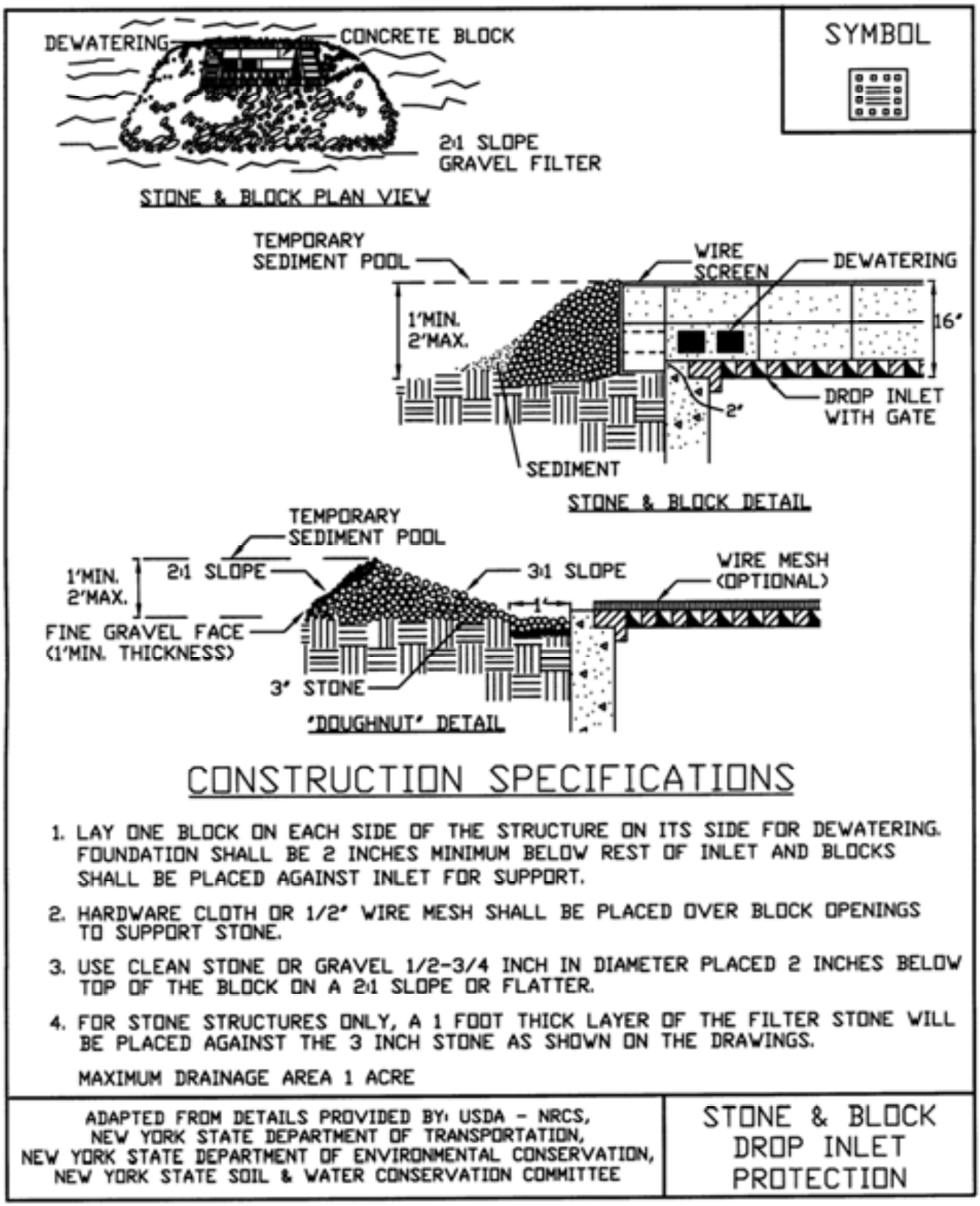


Figure 5.33
Stone & Block Drop Inlet Protection



CONSTRUCTION SPECIFICATIONS

1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE FOR DEWATERING. FOUNDATION SHALL BE 2 INCHES MINIMUM BELOW REST OF INLET AND BLOCKS SHALL BE PLACED AGAINST INLET FOR SUPPORT.
2. HARDWARE CLOTH OR 1/2" WIRE MESH SHALL BE PLACED OVER BLOCK OPENINGS TO SUPPORT STONE.
3. USE CLEAN STONE OR GRAVEL 1/2-3/4 INCH IN DIAMETER PLACED 2 INCHES BELOW TOP OF THE BLOCK ON A 2:1 SLOPE OR FLATTER.
4. FOR STONE STRUCTURES ONLY, A 1 FOOT THICK LAYER OF THE FILTER STONE WILL BE PLACED AGAINST THE 3 INCH STONE AS SHOWN ON THE DRAWINGS.

MAXIMUM DRAINAGE AREA 1 ACRE

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS,
NEW YORK STATE DEPARTMENT OF TRANSPORTATION,
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION,
NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

STONE & BLOCK DROP INLET PROTECTION

STANDARD AND SPECIFICATIONS FOR STRAW BALE DIKE

Definition & Scope

A **temporary** barrier of straw, or similar material, used to intercept sediment laden runoff from small drainage areas of disturbed soil to reduce runoff velocity and effect deposition of the transported sediment load. Straw bale dikes have an estimated design life of three (3) months.

Condition Where Practice Applies

The straw bale dike is used where:

1. No other practice is feasible.
2. There is no concentration of water in a channel or other drainageway above the barrier.
3. Erosion would occur in the form of sheet erosion.
4. Length of slope above the straw bale dike does not exceed the following limits with the bale placed 10 feet from the toe of the slope:

Constructed Slope	Percent Slope	Slope Length (ft.)
2:1	50	25
3:1	33	50
4:1	25	75

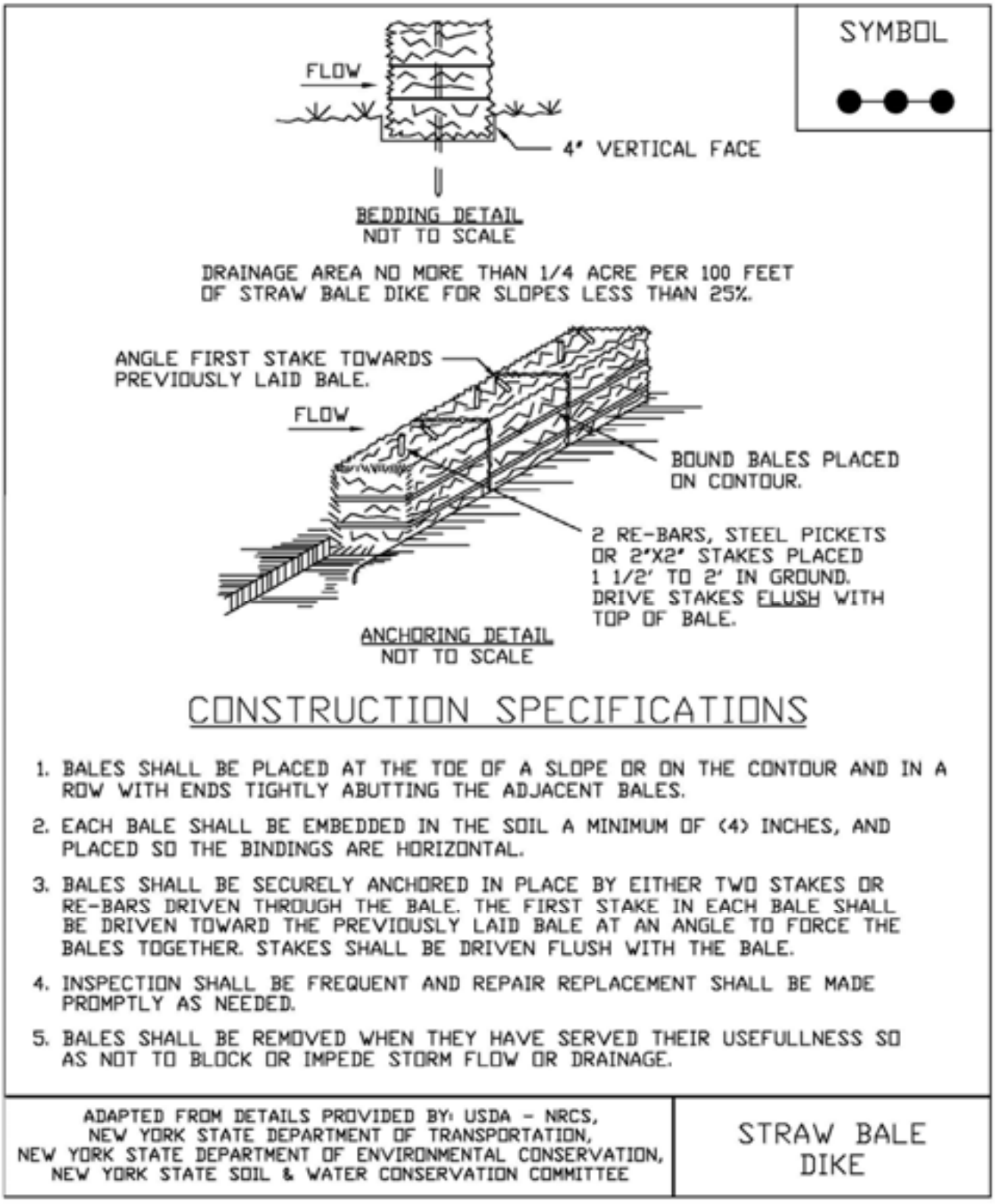
Where slope gradient changes through the drainage area, steepness refers to the steepest slope section contributing to the straw bale dike.

The practice may also be used for a single family lot if the slope is less than 15 percent. The contributing drainage areas in this instance shall be less than one quarter of an acre per 100 feet of dike and the length of slope above the dike shall be less than 100 feet.

Design Criteria

The above table is adequate, in general, for a one-inch rainfall event. Larger storms could cause failure of this practice. Use of this practice in sensitive areas for longer than one month should be specifically designed to store expected runoff. All bales shall be placed on the contour with cut edge of bale adhering to the ground. See Figure 5.34 on page 5.64 for details.

Figure 5.34
Straw Bale Dike



STANDARD AND SPECIFICATIONS FOR TURBIDITY CURTAIN

Definition & Scope

A **temporary** flexible, impenetrable barrier used to trap sediment in water bodies. This curtain is weighted at the bottom to achieve closure while supported at the top through a flotation system and used to prevent the migration of silt from a work site in a water environment into the larger body of water. Top bar float has to support weight of curtain material. Bottom anchor has to be flexible so that it will lie along the contour of the water body bottom.

Condition Where Practice Applies

A turbidity curtain is generally used when construction activity occurs within a waterbody or along its shoreline and is of short duration, generally less than one month. Curtains are used in calm water surfaces and not in areas of flowing water. **Turbidity curtains are not to be used across flowing watercourses.**

Design Criteria

The turbidity curtain shall be located beyond the lateral limits of the construction site and firmly anchored in place. The alignment should be set as close to the work area as possible but not so close as to be disturbed by applicable construction equipment. The height of the curtain shall be 20 percent greater than the depth of the water to allow for water level fluctuations. The area that the turbidity curtain protects shall not contain large culverts or drainage areas that if flows occur behind the curtain would cause a breach or lost contact at the bottom surface.

If water depths at the design alignment are minimal, the toe can be anchored in place by staking.

See Figure 5.35 on page 5.66.

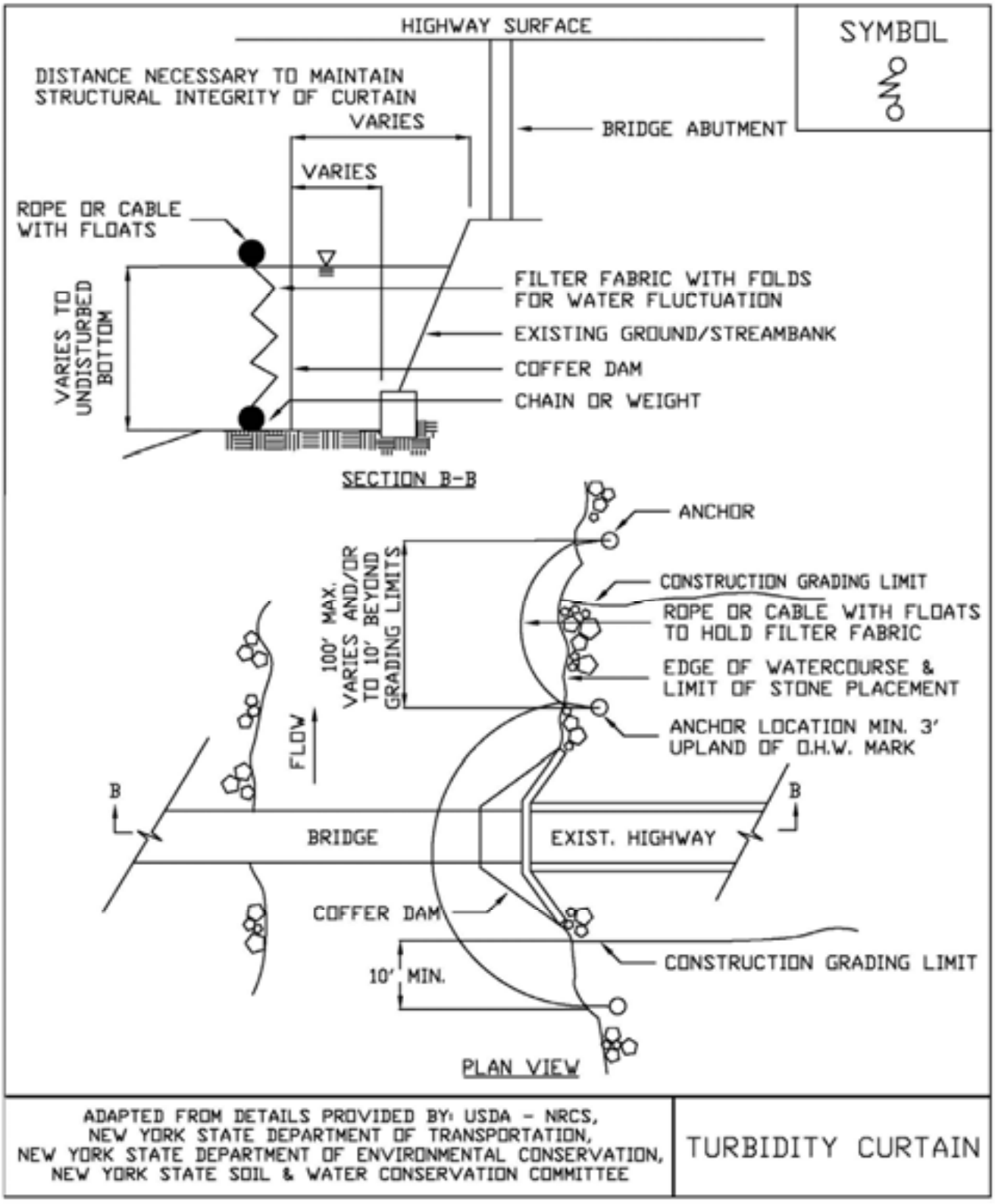
Construction Specifications

The area of proposed installation of the curtain shall be inspected for obstacles and impediments that could damage the curtain or impair its effectiveness to retain sediment. All materials shall be removed so they cannot enter the waterbody. Shallow installations can be made by securing the curtain by staking rather than using a flotation system. Supplemental anchors of the turbidity curtain toe shall be used, as needed, depending on water surface disturbances such as boats and wave action by winds.

Maintenance

The turbidity curtain shall be inspected daily and repaired or replaced immediately. It is not normally necessary to remove sediment deposited behind the curtain; but, when necessary, removal is usually done by hand prior to removal of the barrier. All removed silt is stabilized away from the waterbody. The barrier shall be removed by carefully pulling it toward the construction site to minimize the release of attached sediment. Any floating construction or natural debris shall be immediately removed to prevent damage to the curtain. If the curtain is oriented in a manner that faces the prevailing winds, frequent checks of the anchorage shall be made.

Figure 5.35
Turbidity Curtain



APPENDIX B-3

NYSDOH'S GENERIC COMMUNITY AIR MONITORING PLAN
FUGITIVE DUST AND PARTICULATE MONITORING

Appendix 1A
New York State Department of Health
Generic Community Air Monitoring Plan

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. “Periodic” monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or

overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

December 2009

Appendix 1B
Fugitive Dust and Particulate Monitoring

A program for suppressing fugitive dust and particulate matter monitoring at hazardous waste sites is a responsibility on the remedial party performing the work. These procedures must be incorporated into appropriate intrusive work plans. The following fugitive dust suppression and particulate monitoring program should be employed at sites during construction and other intrusive activities which warrant its use:

1. Reasonable fugitive dust suppression techniques must be employed during all site activities which may generate fugitive dust.

2. Particulate monitoring must be employed during the handling of waste or contaminated soil or when activities on site may generate fugitive dust from exposed waste or contaminated soil. Remedial activities may also include the excavation, grading, or placement of clean fill. These control measures should not be considered necessary for these activities.

3. Particulate monitoring must be performed using real-time particulate monitors and shall monitor particulate matter less than ten microns (PM10) with the following minimum performance standards:

(a) Objects to be measured: Dust, mists or aerosols;
(b) Measurement Ranges: 0.001 to 400 mg/m3 (1 to 400,000 :ug/m3);
(c) Precision (2-sigma) at constant temperature: +/- 10 :g/m3 for one second averaging; and +/- 1.5 g/m3 for sixty second averaging;
(d) Accuracy: +/- 5% of reading +/- precision (Referred to gravimetric calibration with SAE fine test dust (mmd= 2 to 3 :m, g= 2.5, as aerosolized);
(e) Resolution: 0.1% of reading or 1g/m3, whichever is larger;
(f) Particle Size Range of Maximum Response: 0.1-10;
(g) Total Number of Data Points in Memory: 10,000;
(h) Logged Data: Each data point with average concentration, time/date and data point number
(i) Run Summary: overall average, maximum concentrations, time/date of maximum, total number of logged points, start time/date, total elapsed time (run duration), STEL concentration and time/date occurrence, averaging (logging) period, calibration factor, and tag number;
(j) Alarm Averaging Time (user selectable): real-time (1-60 seconds) or STEL (15 minutes), alarms required;
(k) Operating Time: 48 hours (fully charged NiCd battery); continuously with charger;
(l) Operating Temperature: -10 to 50^{o} C (14 to 122^{o} F);
(m) Particulate levels will be monitored upwind and immediately downwind at the working site and integrated over a period not to exceed 15 minutes.

4. In order to ensure the validity of the fugitive dust measurements performed, there must be appropriate Quality Assurance/Quality Control (QA/QC). It is the responsibility of the remedial party to adequately supplement QA/QC Plans to include the following critical features: periodic instrument calibration, operator training, daily instrument performance (span) checks, and a record keeping plan.

5. The action level will be established at 150 ug/m3 (15 minutes average). While conservative,

this short-term interval will provide a real-time assessment of on-site air quality to assure both health and safety. If particulate levels are detected in excess of 150 ug/m3, the upwind background level must be confirmed immediately. If the working site particulate measurement is greater than 100 ug/m3 above the background level, additional dust suppression techniques must be implemented to reduce the generation of fugitive dust and corrective action taken to protect site personnel and reduce the potential for contaminant migration. Corrective measures may include increasing the level of personal protection for on-site personnel and implementing additional dust suppression techniques (see paragraph 7). Should the action level of 150 ug/m3 continue to be exceeded work must stop and DER must be notified as provided in the site design or remedial work plan. The notification shall include a description of the control measures implemented to prevent further exceedances.

6. It must be recognized that the generation of dust from waste or contaminated soil that migrates off-site, has the potential for transporting contaminants off-site. There may be situations when dust is being generated and leaving the site and the monitoring equipment does not measure PM10 at or above the action level. Since this situation has the potential to allow for the migration of contaminants off-site, it is unacceptable. While it is not practical to quantify total suspended particulates on a real-time basis, it is appropriate to rely on visual observation. If dust is observed leaving the working site, additional dust suppression techniques must be employed. Activities that have a high dusting potential--such as solidification and treatment involving materials like kiln dust and lime--will require the need for special measures to be considered.

7. The following techniques have been shown to be effective for the controlling of the generation and migration of dust during construction activities:

(a) Applying water on haul roads;
(b) Wetting equipment and excavation faces;
(c) Spraying water on buckets during excavation and dumping;
(d) Hauling materials in properly tarped or watertight containers;
(e) Restricting vehicle speeds to 10 mph;
(f) Covering excavated areas and material after excavation activity ceases; and
(g) Reducing the excavation size and/or number of excavations.

Experience has shown that the chance of exceeding the 150ug/m3 action level is remote when the above-mentioned techniques are used. When techniques involving water application are used, care must be taken not to use excess water, which can result in unacceptably wet conditions. Using atomizing sprays will prevent overly wet conditions, conserve water, and provide an effective means of suppressing the fugitive dust.

8. The evaluation of weather conditions is necessary for proper fugitive dust control. When extreme wind conditions make dust control ineffective, as a last resort remedial actions may need to be suspended. There may be situations that require fugitive dust suppression and particulate monitoring requirements with action levels more stringent than those provided above. Under some circumstances, the contaminant concentration and/or toxicity may require additional monitoring to protect site personnel and the public. Additional integrated sampling and chemical analysis of the dust may also be in order. This must be evaluated when a health and safety plan is developed and when appropriate suppression and monitoring requirements are established for protection of health and the environment.

Appendix 4

Community Air Monitoring Plan

Section 5.3 and Appendix B-3
Of the Excavation Work Plan

BROWNFIELD CLEANUP PROGRAM

APPENDIX B
EXCAVATION WORK PLAN

TECUMSEH PHASE II BUSINESS PARK
NYSDEC SITE NUMBERS: C915198 through C915198L
LACKAWANNA, NEW YORK

December 2013
Revised July 2021

0071-012-322

Prepared By:

TurnKey Environmental Restoration, LLC
2558 Hamburg Turnpike, Suite 300
Buffalo, NY 14218
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PAGES FROM
EXCAVATION WORK PLAN
REVISED JULY 2021

5.3 Community Air Monitoring Plan

As detailed in Appendix B-3, the following criteria shall also be adhered to during intrusive activities for the protection of the nearby community.

5.3.1 Organic Vapor Community Air Monitoring:

Community air monitoring will be performed at the downwind perimeter of the exclusion zone on a continuous basis during intrusive activities performed outdoors that may be reasonably expected to potentially release organic vapors, or when sustained readings are detected in the work zone (i.e., proximate to the source of the intrusive activity). Otherwise, the monitoring will be performed on an hourly basis. A photoionization detector (PID), or other equipment suitable to the types of contaminants known or suspected to be present, capable of calculating 15-minute running average concentrations will be used. All air monitoring equipment will be calibrated at least daily, and an upwind concentration will be taken at least daily to establish background conditions. The 15-minute average concentrations will be compared to the levels specified below.

- If the 15-minute ambient air concentration of organic vapors at the downwind perimeter of the exclusion zone exceeds 5 ppm above background, work activities will be halted and monitoring continued. If the organic vapor decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.
- If the ambient air concentration of organic vapors at the downwind perimeter of the exclusion zone persists at levels above 5 ppm over background but less than 25 ppm, activities must be halted, the source of vapors identified, corrective actions to abate the emissions taken, and monitoring continued. After these steps, work activities can resume provided that: the organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest off-site potential receptor or residential or commercial structure, whichever is less (but in no case less than 20 feet), is below 5 ppm over background for the 15-minute average.
- If the organic vapor level is above 25 ppm at the perimeter of the exclusion zone, work activities must be shut down and the following activities will be performed:
  - All Emergency Response Contacts as listed in the HASP (Ref. 2) and the Emergency Response Plan (an appendix to the HASP) will be advised.
  - The local police authorities will immediately be contacted by the Site Health and Safety Officer and advised of the situation.
  - Air monitoring will be continued at ½ the distance from the exclusion zone to the nearest receptor.

All readings will be recorded and will be available for NYSDEC and NYSDOH personnel to review.

5.3.2 Explosive Vapor Community Air Monitoring

Explosive vapor community air monitoring will be performed at the downwind perimeter of the site on a continuous basis whenever sustained atmospheric concentrations of greater than 10% of the LEL are recorded in the exclusion zone. If sustained atmospheric concentrations of greater than 10% LEL are recorded at the downwind site perimeter, the local Fire Department will be contacted.

5.3.3 Airborne Particulate Community Air Monitoring

Respirable (PM-10) particulate monitoring will be performed on a continuous basis at the upwind and downwind perimeter of the exclusion zone. The monitoring will be performed using real-time monitoring equipment capable of measuring PM-10 and integrating over a period of 15-minutes for comparison to the airborne particulate action levels. The equipment will be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration will be visually assessed during all work activities. All readings will be recorded and will be available for NYSDEC and NYSDOH review. Readings will be interpreted as follows:

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (ug/m^3) greater than the background (upwind perimeter) reading for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression provided that the downwind PM-10 particulate levels do not exceed 150 ug/m^3 above the upwind level and that visible dust is not migrating from the work area.

If after implementation of dust suppression techniques, downwind PM-10 levels are greater than 150 ug/m^3 above the upwind level, work activities must be stopped, and dust suppression controls re-evaluated. Work can resume provided that supplemental dust suppression measures and/or other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 ug/m^3 of the upwind level and in preventing visible dust migration.

Air sampling stations will be located based on generally prevailing wind conditions. These locations will be adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and at least two downwind monitoring stations.

Exceedances of action levels listed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers.

5.3.4 Special Requirements

Ground intrusive activities within 20 feet of occupied structures or potential receptors (e.g., public roadways, sidewalks, etc.) should consider the following:

- Continuous monitoring locations should reflect the nearest potentially exposed individuals and vapor pathways (openings, conduits, vents, etc.).
- Take background readings in the occupied spaces prior to commencement of planned work.
- Consider use of engineering controls such as vapor/dust barriers, exhaust fans, or other controls to create negative air pressure within the work area.
- The planned work should be implemented during hours when building occupancy is at a minimum.

5.4 Odor Control Plan

The purpose of this odor control plan is to control emissions of nuisance odors off-site. Specific odor control methods to be used on a routine basis are described below. If nuisance odors are identified at the Site boundary, or if odor complaints are received, work will be halted, and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the associated Site Owner, and any measures that are implemented will be documented.

All necessary means will be employed to prevent on- and off-site nuisances. At a minimum, these measures will include: (a) limiting the area of open excavations and size of soil stockpiles; (b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-site disposal; (e) use of chemical odorants in spray or misting systems; and (f) use of staff to monitor odors in surrounding neighborhoods.

If nuisance odors develop during intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to on-site conditions or

proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering systems.

5.5 Dust Control Plan

Particulate monitoring will be performed along the downwind perimeter of the Site during subgrade excavation, grading, and handling activities in accordance with the requirements for community air monitoring at remediation sites as established by the NYSDOH and NYSDEC. Accordingly, it follows procedures and practices outlined under DER-10 Appendix 1A (NYSDOH's Generic Community Air Monitoring Plan) and Appendix 1B (Fugitive Dust and Particulate Monitoring) both included as Appendix B-3. Dust suppression techniques will be employed as necessary to mitigate fugitive dust from non-vegetated or disturbed soil/fill during post-remediation construction and redevelopment.

A dust suppression plan that addresses dust management during intrusive on-site work will include, at a minimum, the items listed below:

- Dust suppression will be achieved by using a dedicated on-site water truck for road wetting. The truck will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles.
- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.
- Gravel will be used on roadways to provide a clean and dust-free road surface.
- On-site roads will be limited in total area to minimize the area required for water truck sprinkling.
- Hauling materials in properly tarped containers or vehicles.
- Restricting vehicle speeds on-site.
- Covering or proof-rolling excavated areas and materials after excavation activity ceases.
- Reducing the excavation size and/or number of excavations.

All reasonable attempts will be made to keep visible and/or fugitive dust to a minimum.

APPENDIX B-3

NYSDOH'S GENERIC COMMUNITY AIR MONITORING PLAN
FUGITIVE DUST AND PARTICULATE MONITORING

Appendix 1A
New York State Department of Health
Generic Community Air Monitoring Plan

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. “Periodic” monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or

overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

December 2009

Appendix 1B
Fugitive Dust and Particulate Monitoring

A program for suppressing fugitive dust and particulate matter monitoring at hazardous waste sites is a responsibility on the remedial party performing the work. These procedures must be incorporated into appropriate intrusive work plans. The following fugitive dust suppression and particulate monitoring program should be employed at sites during construction and other intrusive activities which warrant its use:

1. Reasonable fugitive dust suppression techniques must be employed during all site activities which may generate fugitive dust.

2. Particulate monitoring must be employed during the handling of waste or contaminated soil or when activities on site may generate fugitive dust from exposed waste or contaminated soil. Remedial activities may also include the excavation, grading, or placement of clean fill. These control measures should not be considered necessary for these activities.

3. Particulate monitoring must be performed using real-time particulate monitors and shall monitor particulate matter less than ten microns (PM10) with the following minimum performance standards:

(a) Objects to be measured: Dust, mists or aerosols;
(b) Measurement Ranges: 0.001 to 400 mg/m3 (1 to 400,000 :ug/m3);
(c) Precision (2-sigma) at constant temperature: +/- 10 :g/m3 for one second averaging; and +/- 1.5 g/m3 for sixty second averaging;
(d) Accuracy: +/- 5% of reading +/- precision (Referred to gravimetric calibration with SAE fine test dust (mmd= 2 to 3 :m, g= 2.5, as aerosolized);
(e) Resolution: 0.1% of reading or 1g/m3, whichever is larger;
(f) Particle Size Range of Maximum Response: 0.1-10;
(g) Total Number of Data Points in Memory: 10,000;
(h) Logged Data: Each data point with average concentration, time/date and data point number
(i) Run Summary: overall average, maximum concentrations, time/date of maximum, total number of logged points, start time/date, total elapsed time (run duration), STEL concentration and time/date occurrence, averaging (logging) period, calibration factor, and tag number;
(j) Alarm Averaging Time (user selectable): real-time (1-60 seconds) or STEL (15 minutes), alarms required;
(k) Operating Time: 48 hours (fully charged NiCd battery); continuously with charger;
(l) Operating Temperature: -10 to 50^{o} C (14 to 122^{o} F);
(m) Particulate levels will be monitored upwind and immediately downwind at the working site and integrated over a period not to exceed 15 minutes.

4. In order to ensure the validity of the fugitive dust measurements performed, there must be appropriate Quality Assurance/Quality Control (QA/QC). It is the responsibility of the remedial party to adequately supplement QA/QC Plans to include the following critical features: periodic instrument calibration, operator training, daily instrument performance (span) checks, and a record keeping plan.

5. The action level will be established at 150 ug/m3 (15 minutes average). While conservative,

this short-term interval will provide a real-time assessment of on-site air quality to assure both health and safety. If particulate levels are detected in excess of 150 ug/m3, the upwind background level must be confirmed immediately. If the working site particulate measurement is greater than 100 ug/m3 above the background level, additional dust suppression techniques must be implemented to reduce the generation of fugitive dust and corrective action taken to protect site personnel and reduce the potential for contaminant migration. Corrective measures may include increasing the level of personal protection for on-site personnel and implementing additional dust suppression techniques (see paragraph 7). Should the action level of 150 ug/m3 continue to be exceeded work must stop and DER must be notified as provided in the site design or remedial work plan. The notification shall include a description of the control measures implemented to prevent further exceedances.

6. It must be recognized that the generation of dust from waste or contaminated soil that migrates off-site, has the potential for transporting contaminants off-site. There may be situations when dust is being generated and leaving the site and the monitoring equipment does not measure PM10 at or above the action level. Since this situation has the potential to allow for the migration of contaminants off-site, it is unacceptable. While it is not practical to quantify total suspended particulates on a real-time basis, it is appropriate to rely on visual observation. If dust is observed leaving the working site, additional dust suppression techniques must be employed. Activities that have a high dusting potential--such as solidification and treatment involving materials like kiln dust and lime--will require the need for special measures to be considered.

7. The following techniques have been shown to be effective for the controlling of the generation and migration of dust during construction activities:

(a) Applying water on haul roads;
(b) Wetting equipment and excavation faces;
(c) Spraying water on buckets during excavation and dumping;
(d) Hauling materials in properly tarped or watertight containers;
(e) Restricting vehicle speeds to 10 mph;
(f) Covering excavated areas and material after excavation activity ceases; and
(g) Reducing the excavation size and/or number of excavations.

Experience has shown that the chance of exceeding the 150ug/m3 action level is remote when the above-mentioned techniques are used. When techniques involving water application are used, care must be taken not to use excess water, which can result in unacceptably wet conditions. Using atomizing sprays will prevent overly wet conditions, conserve water, and provide an effective means of suppressing the fugitive dust.

8. The evaluation of weather conditions is necessary for proper fugitive dust control. When extreme wind conditions make dust control ineffective, as a last resort remedial actions may need to be suspended. There may be situations that require fugitive dust suppression and particulate monitoring requirements with action levels more stringent than those provided above. Under some circumstances, the contaminant concentration and/or toxicity may require additional monitoring to protect site personnel and the public. Additional integrated sampling and chemical analysis of the dust may also be in order. This must be evaluated when a health and safety plan is developed and when appropriate suppression and monitoring requirements are established for protection of health and the environment.

Appendix 5

Stormwater Pollution Prevention Plan (SWPPP)

To Be Submitted to NYSDEC

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

STORMWATER POLLUTION PREVENTION PLAN

for

Renaissance Commerce Park
Public Road B

LACKWANNA, NY

June 2022

Prepared for:

Buffalo and Erie County Industrial Land Development Corporation (ILDC)
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1. INTRODUCTION

This Stormwater Pollution Prevention Plan (SWPPP) is prepared in accordance with the requirements of Article 17, Titles 7, 8 and Article 70 of the New York State Environmental Conservation Law to obtain coverage under the SPDES General Permit for Stormwater Discharge from Construction Activities (GP-0-15-002) (General Permit).

A Construction Notice of Intent (NOI) will be filed with the New York State Department of Environmental Conservation (NYSDEC).

The design standards and practices contained in the SWPPP are in accordance with the New York Standards and Specifications for Erosion and Sediment Control, and the New York State Stormwater Management Design Manual (Design Manual).

The project meets the full SWPPP requirements contained in the General Permit guidelines, and therefore this plan addresses both construction and post-construction control measures to control stormwater runoff for project site preparation and infrastructure construction.

The SWPPP includes:

a. identification of the SWPPP coordinator with a description of this person's duties;

b. description of the existing site conditions including existing land use/condition of the site (i.e., woodlands, open grass areas, paved areas, buildings, etc.), soil types, and the location of surface waters, such as wetlands, lakes, ponds, streams or the like, which are located on or next to the site;

c. identification of the surface water(s) that will receive site construction runoff, including the water body ultimately used for receiving stormwater runoff;

d. identification of drainage areas and potential stormwater contaminants;

e. description of stormwater management controls implemented during construction which are necessary to reduce erosion, sediment and pollutants in stormwater discharge;

f. description of the site's monitoring plan and how controls will be coordinated with construction activities; and

g. description of post-construction stormwater management practices for runoff quality and quantity control.

2. FACILITIES DESCRIPTION

2.1 Site Location

The project site forms an intersection with the Dona Street Extension and extends northward in the City of Lackawanna, New York. It is located in an industrial redevelopment area on approximately 143 acres within the former Bethlehem Steel Plant, which has been renamed, Renaissance Commerce Park, and owned by the Buffalo-Erie County Industrial Land Development Corporation (ILDC). The project is being advanced under the direction of the Buffalo-Erie County Industrial Land Development Corporation (the ILDC). The site of the proposed action, which is referred to herein as the Development, is located approximately 5лр-feet west of New York State Route 5 (Hamburg Turnpike) and intersects Dona Street Extension. It is bounded on the north and south by proposed development parcels and to the west by the TRS Manufacturing facility and currently under construction, a new distribution center to the east. North and south of the site are barren parcels awaiting redevelopment. (Refer to Figures 1 and 2)

2.2 Project Description

The ILDC is proposing to construct a new roadway segment, referenced as Road B, and will form part of the sites future infrastructure. Access to Road B will be via Dona Street Extension.

The project involves the construction of a new ůǿ2πſl·yŜ y2ℕǔKπă2ʤzǔK ℕ2l·ŘǿI·èΣ approximately 1,450 feet ƛϒ fŜyƎǔKΣ LJℕ2ØΛŘƛyƎ I·ŎŎŜăă ǔ2 ǔKŜ yŜǿ ¦yƛfI·yŘ tℕ2ȻŜŎǔ ăŎKŜŘʤfŜŘ 2LJŜℕI·ǔΛ2yã ƛϒ ǔKŜ ŦI·ff 2Ŧ нлнн I·yŘ I·Ř?I·ŎŜyǔ LJI·ℕŎŜfă¢ ¢KŜ yŜǿ ℕ2I·Ř ów2I·Ř .ú ǿƛfft ōŜ ну ŦŜŜú ǿΛŘŜΣ Ŏ2yãΛăǔΛyƎ 2Ŧ ůǿ2 мнπŦŜŜǔ fI·yŜă ǿƛǔK нπŦŜŜǔ 2ŦŦăŜǔ ōŜǔǿŜŜϒ ŜŘƎŜ 2Ŧ ǔℕI·ØŜf ǿI·è I·yŘ Ŏ2yŎℕŜǔŜ ăΛŘŜǿI·f¶ Ŏ2YLJfèƛyƎ ǿƛǔK !5!D ǿƛfft ōŜ LJℕ2ØΛŘŜŘ 2ϒǔKŜ ǿŜăǔ ăΛŘŜ 2Ŧ w2I·Ř .¢

Site drainage will consist of a closed drainage system ǿΛǔK ŎʤzℕōfΛyŜ ŘℕI·ƛyΛ·ƎŜ ăǔℕʤzŎǔʤzℕŜă. !ff ŘℕI·ƛyΛ·ƎŜ ǿƛfft Ŧf2ǿ ă2ʤzǔK ǔKŜϒ ǿŜăǔ ǔ2 I· LJℕ2LJℕΛŜǔI·ℕè ăǔ2ℕY ǿI·ǔŜℕ ǔℕŜI·ǔYˆŜyǔ ăǔℕʤzŎǔʤzℕŜΣ {ǔ2ℕY tℕ2Σ ǔKI·ǔ YˆŜŜǔă ǔKŜ ƛyǔŜyǔ 2Ŧ ǔKŜ 9yØΛℕ2yYˆŜyǔ нм¢ wunoff will also flow through a proprietary structure for use as water quality treatment.

Due to the site being a redevelopment site for stormwater purposes, the stormwater management features will provide water quality treatment for the closed system.

2.3 Type of Construction

The construction of this project will consist primarily of road construction, but also the other elements described above.

The following construction activities will take place.

- Clearing and grubbing of existing ground cover within the area disturbed by construction.
- Earthwork, regrading of the site within the site footprint.
- Construction of the road, sidewalk, and storm drainage system.
- Landscaping, top soil placement and seeding of disturbed areas.

The area of disturbance prior to site construction is shown on Figure 3.

2.4 Existing Site Conditions

The site was previously a storage yard for the Bethlehem steel plant and extends east and west between NYS Rt. 5 to the east and an existing paved road to the west. Dona Street Extension was the first public road through the site and provided access to Welded Tube from NY Route 5. Road B forms a T-intersection with Dona Street Extension and will extend northward. The planned right of way is 66 feet wide in the east/west direction. Road B corridor is primarily overburden soil and gravel with pockets of grasses, trees and brush. Intersperse along the corridor are remnants of concrete foundations for the cranes. There are no wetlands within the project limits or within the area surrounding the site.

A site plan showing existing Site features is included as Figure 2. The site is flat with elevations ranging from approximately 580 feet to 585 feet above mean sea level. Prior to construction of the steel plant, the site was marsh and lake, and was filled in to construct the steel plant.

The site soils are considered urban land. (Appendix E)

The NYS Storm Drainage Design Manual was used to determine the water quality volume and flow for the site (Appendix B).

2.4.1 Rare Plants and Animal Impacts

The site is in an urban area and was previously a steel plant. The site has been disturbed for at least 100 years due to the use as a steel plant and has been significantly impacted by this use. The project has a limited scope to construct a new access road within the existing disturbed area. Therefore, it is anticipated that no impacts to rare plants and animals will occur as a result of this project.

2.4.2 Wetland Impacts

Based on a review of current databases, both State and Federal no jurisdictional wetlands are present on or near the project site.

2.4.3 Site Soils

Appendix E describe the soils located on Site. The soils consist of urban land.

2.4.4 Historic Preservation

No historical structures are located on or near the proposed road.

2.5 Proposed Conditions

The improvements to the site will center on an approximately 1,500-foot road to intersect Dona Street Extension and proceed northward providing access to a facility currently under construction on the east side of Road B and to connect the interior of the larger property and undeveloped commercial/ industrial parcels. The proposed road will be 28 feet wide will be constructed with Asphalt Concrete pavement and concrete curbs. A 5-foot concrete sidewalk will be located on the west side of the road. The area between the right of way limits and the concrete curb will be grass and graded to slope towards the road. The area outside the right of way are developed parcels or current ground cover and are beyond the scope and/or limits of this project.

A closed drainage system will be installed to collect runoff. The runoff will be directed south on Road B and west on Dona Street Extension and will flow through a water quality structure, StormPro, meeting the requirements of the NYS DEC Stormwater Design Manual for Water Quality treatment prior to outletting into the drainage ditch.

No Sanitary sewers are included in the Road B construction.

2.6 Runoff Quality

During construction the following practices (designed in accordance with the New York State Erosion and Sedimentation Manual) will be employed to control erosion, and minimize sedimentation (Refer to Figures 7 and 8 and Section 3).

- Silt fence and/or silt filter sock
- Temporary seeding
- Stabilized construction entrance
- Drainage structure inlet protection

3. CONSTRUCTION STORMWATER MANAGEMENT

3.1 Stormwater Management Controls

The purpose of this section is to identify the types of temporary and permanent erosion and sediment controls that will be used on the site. The controls will provide soil stabilization for disturbed areas and structural controls to divert runoff and remove sediment. This section will also address control of other potential stormwater pollutant sources such as concrete dust, grease, fuel oil, and waste disposal.

3.1.1 Temporary and Permanent Erosion Control Practices

To limit soil migration, the following is a list of measures that will be implemented.

- Silt fencing, sediment filter logs, or a similar containment method will be placed before any clearing and grading takes place.

- Stabilized construction road

These measures are shown in Figure 8.

3.1.2 Control Structure Design

All erosion and sediment control structures are designed in accordance with the New York State Standards and Specification for Erosion and Sediment Control.

3.1.3 Construction Practices to Minimize Stormwater Contamination

All waste materials will be collected and stored in a securely lidded metal dumpster supplied by a waste handler which is a licensed solid waste management company. All trash and construction debris from the site shall be deposited in the dumpster. The dumpster will be emptied on an as-needed basis and the trash will be hauled to an approved landfill. No construction materials will be buried on site. All personnel will be instructed regarding the correct procedure for waste disposal. All sanitary waste will be collected from the portable units a minimum of two times per week by a licensed sanitary sewer waste management contractor. Good housekeeping and spill control practices will be followed during construction to minimize stormwater contamination form petroleum products, fertilizers, paints and concrete. To prevent stormwater contamination from the site, good housekeeping/maintenance practices listed below should be used.

- Fertilizers will be applied only in the minimum amounts recommend by the manufacturer, unless specified otherwise by the engineer and will be worked into the soil to limit exposure to stormwater.
- Fertilizers will be stored in a covered shed and partially used bags will be transferred to a sealable bin to avoid spills.
- All construction vehicles on site will be monitored for leaks and receive regular preventative maintenance to reduce the chance of leakage.
- Petroleum products will be stored in clearly labeled and tightly sealed containers.
- A covered dumpster will be used for all waste materials.
- Sanitary waste will be collected from portable units a minimum of two times per week to avoid overfilling.
- All curing compounds will be tightly sealed and stored when not required for use. Excess compounds will not be discharged to the storm system, but will be disposed according to the manufacturer's instructions.
- Materials and equipment necessary for spill cleanup will be kept in the temporary material storage trailer on site. Equipment will include but not be limited to brooms, dust pans, mops, rags, gloves, goggles, fast absorbent material, sand, saw dust, and plastic and metal trash containers.

- Petroleum spills must be reported to the New York State Department of Environmental Conservation (NYSDEC) unless they meet all of the following criteria:

    1. The spill is known to be less than 5 gallons;

    2. The spill is contained and under the control of the spiller;

    3. The spill has not and will not reach the State's water or any land; and

    4. The spill is cleaned up within 2 hours of discovery.

    All reportable petroleum spills and most hazardous spills must be reported to the NYSDEC Hotline (1-800-457-7362) and the National Response Center (1-800-424-8802). Report the spill to local authorities, if required. For spills not deemed reportable, facts concerning the incident shall be documented by the splliller and a record maintained for one year.

- Storm systems installed to collect and deliver stormwater to the appropriate practices.

- When testing/cleaning of water supply lines occurs, the discharge from the tested pipe will be collected and conveyed to a completed stormwater collection system for ultimate discharge into the detention basin.

- Construct a stabilized construction entrance to reduce vehicles tracking sediments.

- Dump trucks hauling material to and from the construction site will be covered with a tarpaulin.

3.1.4 Construction Sequence

The sequence of construction is important to minimizing erosion and sedimentation. The following sequence shall be followed:

- Conduct a preconstruction meeting with the Contractor(s), Engineer and the County;

- Install silt fence or silt socks, and protect existing drainage structures;

- All curing compounds will be tightly sealed and stored when not required for use. Excess compounds will not be discharged to the storm system, but will be disposed according to the manufacturer's instructions.

- Materials and equipment necessary for spill cleanup will be kept in the temporary material storage trailer on site. Equipment will include but not be limited to brooms, dust pans, mops, rags, gloves, goggles, fast absorbent material, sand, saw dust, and plastic and metal trash containers.

- Petroleum spills must be reported to the New York State Department of Environmental Conservation (NYSDEC) unless they meet all of the following criteria:

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- Storm systems installed to collect and deliver stormwater to the appropriate practices.

- When testing/cleaning of water supply lines occurs, the discharge from the tested pipe will be collected and conveyed to a completed stormwater collection system for ultimate discharge into the detention basin.

- Construct a stabilized construction entrance to reduce vehicles tracking sediments.

- Sweep NYS Route 5 as needed to remove excess mud, dirt or rock tracked from the site.

- Dump trucks hauling material to and from the construction site will be covered with a tarpaulin.

3.1.4 Construction Sequence

The sequence of construction is important to minimizing erosion and sedimentation. The following sequence shall be followed:

- Conduct a preconstruction meeting with the Contractor(s), Engineer and the County;

- Install silt fence or silt socks, and protect existing drainage structures;

- Install temporary construction entrance;
- Remove topsoil, stockpile and stabilize;
- Clear and rough grade site within the proposed ROW;
- Provide granular base for new pavement areas, and temporary or permanent seed for landscaped areas when final grades are achieved or within 14 days of final disturbance;
- Excavate and install utilities and road drainage;
- Construct road and curbs;
- Decompact all soils in accordance with table 5.3 of the New York State Stormwater Design Manual; and

3.1.5 Coordination of Stormwater Management Control Structures with Construction Activities

Stormwater management control structures will be coordinated with construction activities so the control plan is in place before construction begins. The control structures or practices listed below shall be coordinated with construction activities as appropriate.

- Temporary perimeter controls (silt fence, silt sock, stabilized construction entrance) will be installed before any clearing and grading begins.
- Clearing and grading will not occur in an area until it is necessary for construction to proceed unless approved by the County.
- Once construction activity ceases permanently in an area, that area will be stabilized with permanent seed and mulch.
- The temporary perimeter controls (silt fencing,silt sock) will not be removed until all construction activities at the site are complete and soils have been stabilized with a strong grass growth or other permanent cover.

3.1.6 Certification of Compliance with Federal, State and Local Regulation

This SWPPP reflects local, state and federal requirement for stormwater management and erosion and sediment control, as established in SPDES General Permit for Stormwater Discharge from Construction Activity, Permit No. GP-0-15-002.

3.2 Inspection/Maintenance Procedures

3.2.1 Inspections

3.2.1.1 Inspections by a Trained Contractor

A trained contractor shall inspect the erosion and sediment control practices daily when soil disturbance activities are being performed to ensure that they are being maintained in effective operating condition at all times. This trained contractor is referred to as the SWPPP coordinator. The Trained Contractor (SWPPP coordinator) shall sign and date a copy of the Contractor Certification statement contained in this SWPPP in accordance with Part III.A.6 of the General Permit before any construction activity is initiated. The certification shall indicate the Trained Contractor's name, address, phone, site name and address. The Owner/Operator shall attach this certification to the copy of the SWPPP that is being maintained at the site. The Trained Contractor (SWPPP Coordinator) shall have received four hours of NYSDEC endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District or other NYSDEC endorsed entity. The Trained Contractor (SWPPP coordinator) shall utilize a maintenance inspection schedule /checklist listing Contractor responsibilities on the certification form to conduct daily inspections.

3.2.1.2 Inspections by the Owner/Operator's Qualified Inspector

Visual inspections of all cleared and graded acres of the construction site will be performed weekly by a qualified inspector as required by the SPDES General Permit for Stormwater Discharge from Construction Activity (GP-0-15-002). In order to perform these inspections, the qualified inspector has to meet one of the following requirements (per Part IV Section C of the General Permit):

- Licensed Professional Engineer
- Certified Professional in Erosion and Sediment Control (CPESC)
- Registered Landscape Architect, or
- Someone working under the direct supervision of, and at the same company as the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of NYSDEC endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District or other NYSDEC endorsed entity.

During any period when more than 5 acres are disturbed, site inspections will be two (2) per week in accordance with GP-0-15-002, Part IV. C.

The site inspections will be conducted by the SWPPP coordinator or his designated stormwater team members and will verify that the control structures described in this SWPPP are in place, are in good condition and are minimizing erosion. The inspection will also verify that the procedures used to prevent stormwater contamination from construction materials and petroleum products are effective. The following inspection and maintenance practices will be used to maintain erosion and sediment controls:

- Silt fences will be inspect for depth of sediment, for tears, to see if the fabric is securely attached to the fence posts, and to see that the fence posts are firmly in the ground. Sediment will be removed from behind silt fencing when it has reached one-third the height of the fence.

- Silt Filter Sock will be inspected for depth of sediment, to see that the filter sock anchorage is firmly in the ground. Sediment will be removed from behind filter sock rolls when it has reached one-third the height of its height.

- Temporary and permanent seeding will be inspected for bare spots, washouts and healthy growth.

- The stabilized construction entrance will be inspected for sediment track on the road, for clean gravel and to see that all traffic uses the stabilized entrance when leaving the disturbed area.

The inspection report will be completed after each inspection. A copy of the report form to be completed by the SWPPP coordinator is provided in Appendix A of this SWPPP. Completed forms will be maintained on site during the entire construction project. A copy shall also be submitted to the contractor and governing agency no later than two (2) days after the on-site inspection. The contractor will be responsible for reviewing each report and making all necessary repairs to the stormwater management facilities as indicated in the report. Following construction, the completed forms will be retained at the owner's office for a minimum of one (1) year.

If construction activities change or design modifications are made to the site plan, which could impact stormwater, this SWPPP will be amended appropriately. The amended SWPPP will have a description of the new activities that contribute to the increased pollutant loading and the planned sour control activities. Additionally, the SWPPP will be amended if it proves to be ineffective in its objective to control pollutants in stormwater discharge from the site.

3.2.2 Maintenance

During construction and until such time as the site is stabilized, all erosion and sediment control measures shall be maintained as specified in the New York Standards and Specifications for Erosion and Sediment Control as summarized below.

- Silt Fence/Silt Sock – Remove accumulated sediment when bulges appear in the fencing or when sediment is one third the height of the fence or silt sock.

- Stabilized Construction Entrance – Periodic top dressing with stone is required to help prevent tracking of sediment onto public roads.

All drainage and stormwater management facilities will be owned and operated by the County following completion of the project. Maintenance will be performed by the County on a schedule to be determined.

Maintenance of the site by the County will included the following:

- periodic sweeping of the road to remove accumulated sediment;

- scheduled inspections of the catch basins and removal of sediment from the sumps as necessary to allow additional settling; and

3.3 Employee Training

An employee training program will be developed and implemented to educate employees about the requirements of the SWPPP. This education program will include background on the components and goals of the SWPPP and hands-on training in erosion controls, spill prevention and response, good housekeeping, proper material handling, disposal and control of waste, equipment fueling, and proper storage, washing and inspection procedures. All employees will be trained prior to their first day on the site.

3.4 SWPPP Coordinator and Duties

The construction site SWPPP coordinator for the facility will be the contractor. The duties of the construction site SWPPP coordinator include the following:

- implementation of the SWPPP with the aid of the SWPPP team and oversee maintenance practices identified in the SWPPP;
- implement and oversee employee training;
- conduct or provide for inspection and monitoring activities;
- identify other potential pollutant sources and make sure they are added to the plan;
- identify an deficiencies in the SWPPP and make sure they are corrected, and ensure that any changes in construction plans are addressed in the SWPPP; and
- ensure that all housekeeping and monitoring procedures are implemented.

4. POST CONSTRUCTION STORMWATER MANAGEMENT

4.1 Collection and Conveyance Facilities

Permanent stormwater collection and conveyance facilities, storm sewers and catch basisn, are designed to control the developed, post-construction stormwater runoff from the proposed road construction using a 10-year storm.

4.2 Stormwater Runoff Quantity and Quality Management

4.2.1 Peak Flow Mitigation

Due to the previous uses and disturbances at the Site, this project is considered a redevelopment activity as defined in the NYS Stormwater Management Design Manual.

“Redevelopment Activity – Disturbance and reconstruction of existing impervious surfaces…”

As such in accordance with Chapter 9, Section 9.2.1.A Paragraphs I and II:

I- If the redevelopment activities result in no change to hydrology that increases the discharge rate from the project site (Note: Include the redevelopment activity portion of a project and if applicable, any new development in the analysis), the ten-year and hundred-year criteria do not apply.

II- Channel protection for redevelopment activities is not required if there are no changes to hydrology that increase the discharge rate from the project site

The Site as described in Section 2.4 is completely covered with impervious materials, including gravel, concrete and asphalt. The hydrology of the site will not change from the existing conditions. Therefore, water quality treatment will be the only stormwater management practice used.

4.2.2 Water Quality Treatment

There are several options available for water quality treatment based on the existing and future hydrology and treatment alternatives. Due to the limited area at the Site and the small amount of runoff a flow based treatment option will be used.

The water quality treatment practices used on this project are sized in accordance with the uniform sizing criteria specified in NYS Stormwater Management Design Manual using the following standards:

- Treating or reducing the full water quality volume using the 90% rule to achieve removal of 80% TSS and 40%.

With respect to redevelopment activities, Chapter 9, Section 9.2.1.B Paragraph III requires treatment of 75% of the water quality volume from the site or per Section 9.3 the peak rate of the runoff from the water quality design storm.

Water quality treatment will be accomplished through the use of a proprietary system, which is based on the peak flow of the water quality design storm. This system contains a grit collection chamber and oil/water separator feature. A manhole up stream of the structure, having an internal weir will be used as a by-pass structure for flows in excess of the capacity of the treatment structure.

The Water Quality Peak flow was determined using the NYS Stormwater Management Design Manual, Appendix B.2. The Water Quality Peak Flow, q_u, was calculated to be 1.94 cfs and was based on a total drainage area of 2.57 acres and an impervious (contributing) area of 1.11 acres. Refer to Appendix B for the calculation of the Water Quality Peak Flow. The proprietary system proposed contains a grit collection chamber and oil/water separator feature. The structure proposed is designed to treat a flow of 2.5 cfs. In order to allow a higher by-pass the structure will be placed off line and a manhole with a by-pass weir will be installed. This weir will allow for continued treatment of the design water quality flow will also by-passing higher flow rates. The structure proposed is a Contech model Vortechs4000 and was used as a design basis for the specifications.

4.2.3 Runoff Reduction

The project is a redevelopment activity as defined by the NYS Stormwater Management Design Manual and is not required to consider runoff reduction in the design of the stormwater collection system

4.3 Maintenance

Maintenance of the proprietary system will be based on recommendations of the system manufacturer. An inspection plan will be developed by County maintenance personnel to determine when the structure will need to be cleaned. At a minimum, the structure will be inspected monthly and cleaned on a yearly basis to maintain the treatment capacity.

The manholes and catch basins on site will contain 9-inch sumps and require periodic cleaning. Since the majority of the runoff will come from the roof of the Range and a little used driveway, cleaning of these structures will be infrequentDue to the construction of additional impervious surfaces, peak stormwater runoff rates, volumes and pollutant loads will increase when the new areas are developed.

Mitigation of this impact is achieved through employment of stormwater management measures that achieve pollutant removal goals, reduce runoff, reduce channel erosion, prevent overbank flooding, and help control extreme floods.

5. NOTICE OF TERMINATION

Following completion of construction the County will file a Notice of Termination (NOT) with the NYSDEC.

Prior to filing the NOT, the contractor will have the qualified professional perform a final site inspection, at which time the qualified professional shall certify that the site has undergone final stabilization. "Final Stabilization" means that all soil-disturbing activities at the site have been completed and a uniform, perennial vegetative cover with a density of 80% has been established or equivalent stabilization measures (such as the use of mulches or geotextile) have been used on all unpaved areas and areas not covered by permanent structures.

If there are extended periods during the development process when construction activities are temporarily suspended (such as winter shutdown or partial project completion), and all disturbed areas have been temporarily or permanently stabilized, site inspections may be temporarily terminated or reduced in accordance with Part IV Section C.2.c and d of GP-0- 15-002. Prior written notification to the County or NYSDEC is required for any such conditions.

6. CERTIFICATIONS

Engineer's Certification

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manages the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that false statements made herein are punishable as a Class A misdemeanor pursuant to Section 210.45 of the Penal Law."

Signature _____

Name_____

Title_____

Date_____

The Buffalo Erie County Industrial Land Development Corporation (Owner)

Following the completion of construction, the Buffalo Erie County Industrial Land Development Corporation shall file a Notice of Termination (NOT) with the NYSDEC (Appendix D).

Prior to filing the NOT, the Contractor shall have the qualified professional perform a final site inspection, at which time the qualified professional shall certify that the site has undergone final stabilization. "Final Stabilization" means that all soil-disturbing activities at the site have been completed and a uniform, perennial vegetative cover with a density of 80% has been established or equivalent stabilization measures (such as the use of mulches or geotextile) have been used on all unpaved areas and areas not covered by permanent structures.

Signature _____

Name_____

Title_____

Date_____

The General Contractor shall be responsible for the coordination of the installation and maintenance of all erosion and sediment controls for the project, including the work of all subcontractors. Final stabilization of the site including removal of temporary controls and placement of permanent stormwater management practices shall also be coordinated by the General Contractor.

Contractor Certification (General Contractor)

"I hereby certify that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during site inspection. I also understand that the County (the Owner) must comply with the terms and conditions of the New York State Pollutant Discharge Elimination System (SPDES) general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the reference permit and the laws of the State of New York and subject me to criminal, civil and/or administrative proceedings."

Contractor's Repsonsibilities_____

_____

Signature_____

Name_____

Title_____

Address_____

Telephone No._____

Project Name_____

Location_____

Date_____

Contractor Certification (Subcontractor - _____)

"I hereby certify that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during site inspection. I also understand that the County (the Owner) must comply with the terms and conditions of the New York State Pollutant Discharge Elimination System (SPDES) general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the reference permit and the laws of the State of New York and subject me to criminal, civil and/or administrative proceedings."

Contractor's Repsonsibilities_____

_____

Signature_____

Name_____

Title_____

Address_____

Telephone No._____

Project Name_____

Location_____

Date_____

FIGURES

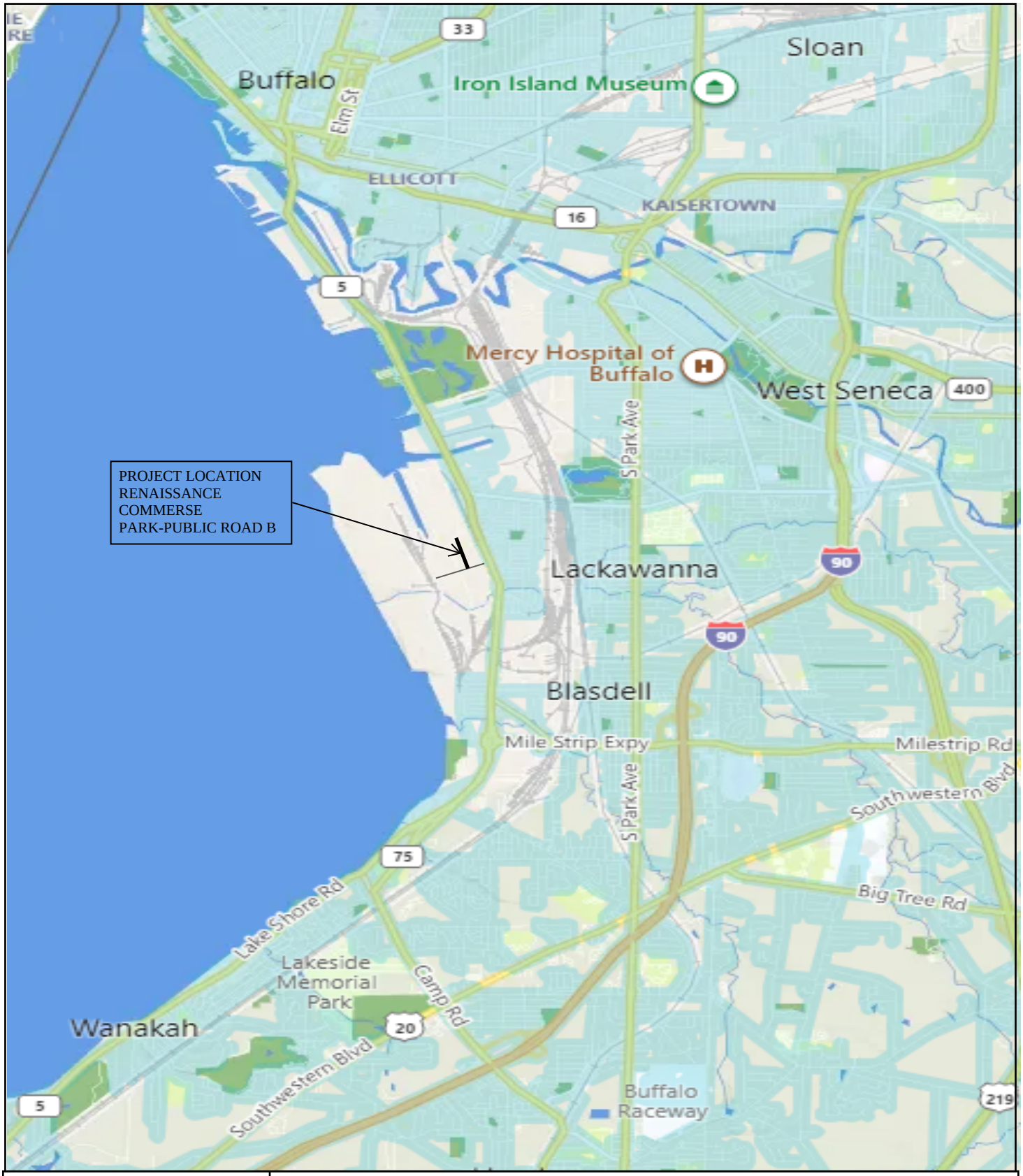
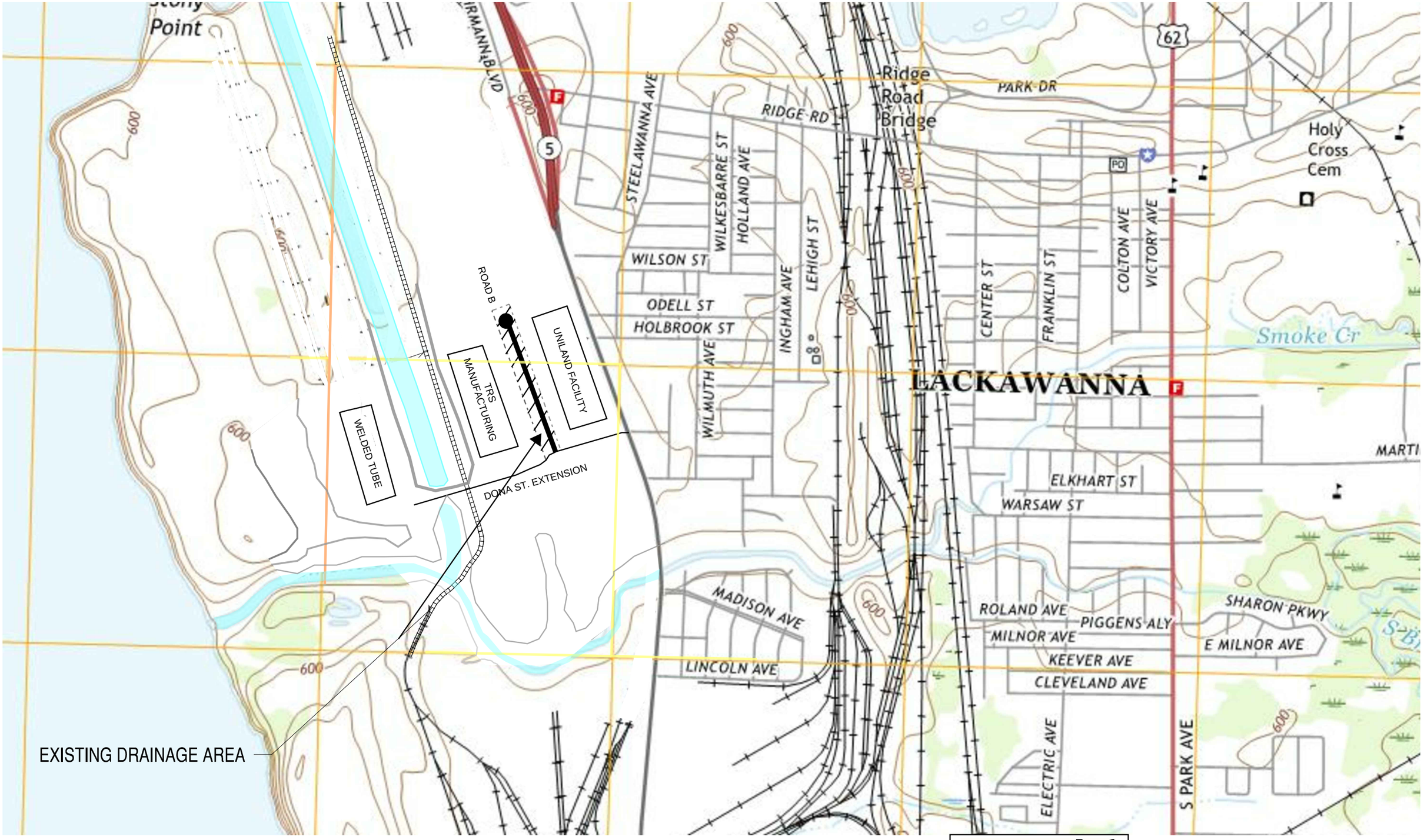


FIGURE 1 - LOCATION MAP

RENAISSANCE COMMERSE PARK
PUBLIC ROAD B LACKAWANNA NY

FoitAlbert ASSOCIATES
Architecture.
Engineering.
Surveying.
Environmental.



EXISTING DRAINAGE AREA

FoitAlbert ASSOCIATES
Architecture. Engineering. Surveying. Environmental.

Buffalo-Erie County Industrial Land Development Corporation
95 Perry Street, Suite 403
Buffalo, New York 14203

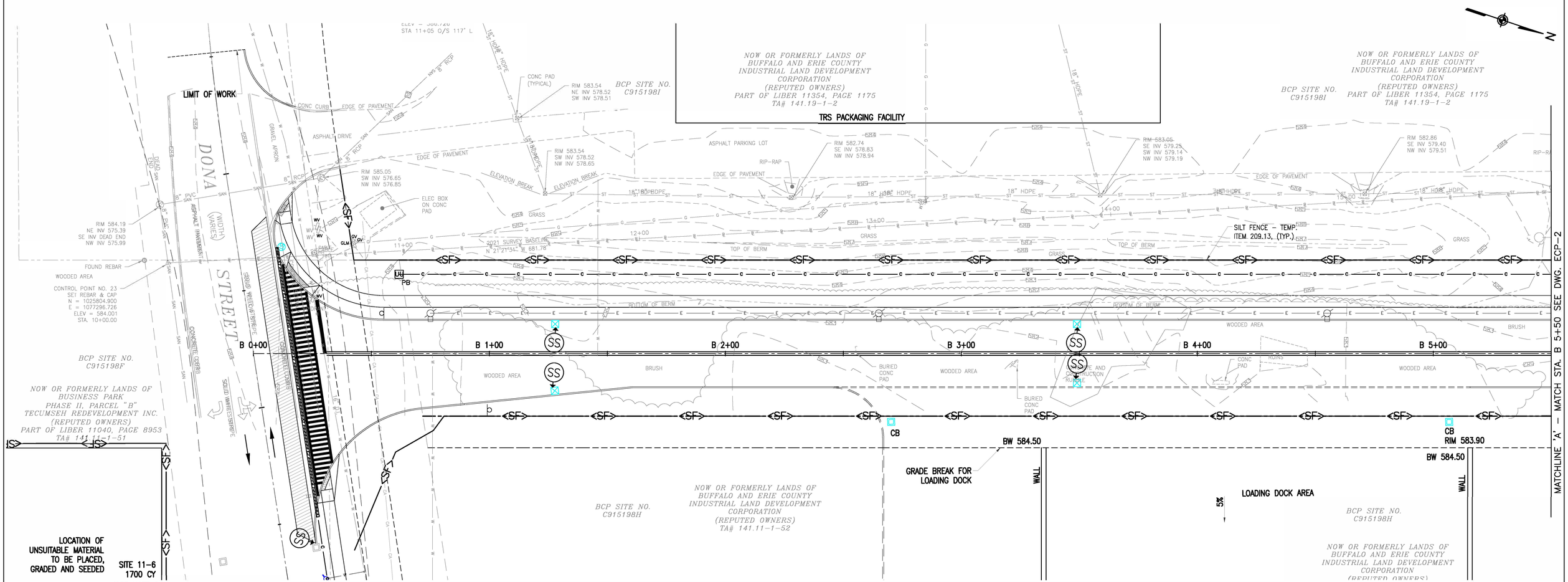
Renaissance Commerce Park Road B

EXISTING DRAINAGE AREA

Date June 2022
Scale N.T.S.
DWG. FIG. 4

V:\Erie County\17-162-0134 - DPW-Dona Street Extension\Design\PRELIMINARY DESIGN\SWPPP Figures\FIG4.dwg 7/27/2018 11:03 AM

RENAISSANCE COMMERCE PARK - PUBLIC ROAD B
Sheet Number 22 OF 31



EROSION CONTROL NOTES:

1. THE CONTRACTOR SHALL APPLY WATER AS CONDITIONS WARRANT TO CONTROL WIND BORN EROSION. THIS MEASURE APPLIES TO HAUL ROADS, CUT AND FILL OPERATIONS, SUBBASE AND ANY OTHER EXPOSED SURFACES. COST FOR APPLYING WATER SHALL BE INCLUDED IN THE VARIOUS CONTRACT ITEMS.
2. ANY GRADED AREAS NOT SUBJECT TO FURTHER DISTURBANCE OR CONSTRUCTION TRAFFIC SHALL WITHIN 7 DAYS OF FINAL GRADING, RECEIVE THE APPLICATION OF THE PROPOSED VEGETATIVE COVER.
3. IN ACCORDANCE WITH THE INTERIM EXCAVATION PLAN, EXCAVATED MATERIAL SHALL REMAIN AT THE AREA DESIGNATED FOR DISPOSAL, SITE 11-6. THE CONTRACTOR SHALL COORDINATE THE FINAL LOCATION OF THE SPOIL MATERIAL WITH THE OWNER (ECIDA) AND EIC.
4. THE FINAL GRADING OF THE SPOILED MATERIAL SHALL NOT BE GREATER THAN 1-½ FEET IN HEIGHT OVER ORIGINAL GROUND. THE EDGES SHALL BE FEATHER TO BLEND WITH THE EXISTING TERRAIN. HYDRO-SEEDING OF VEGETATED COVER SHALL BE DONE WITHIN 1 CALENDAR DAY OF FINAL GRADING.

LEGEND:

——<SF>—— SILT FENCE (TEMPORARY) – 209.13

(SS) INLET PROTECTION – ITEM 209.1702

NOTES:

1. REFER TO DWG. NO. ECD-01 FOR EROSION CONTROL DETAILS.
2. ALL AREAS DISTURBED DURING CONSTRUCTION SHOULD BE RESTORED AS SOON AS PRACTICAL. DISTURBED AREAS SHALL BE TEMPORARILY SEEDED AND MULCHED IF NEEDED DURING CONSTRUCTION TO PREVENT EROSION.

FoitAlbert ASSOCIATES
Architecture, Engineering, Surveying.
295 Main Street, Suite 350 Buffalo, New York 14203

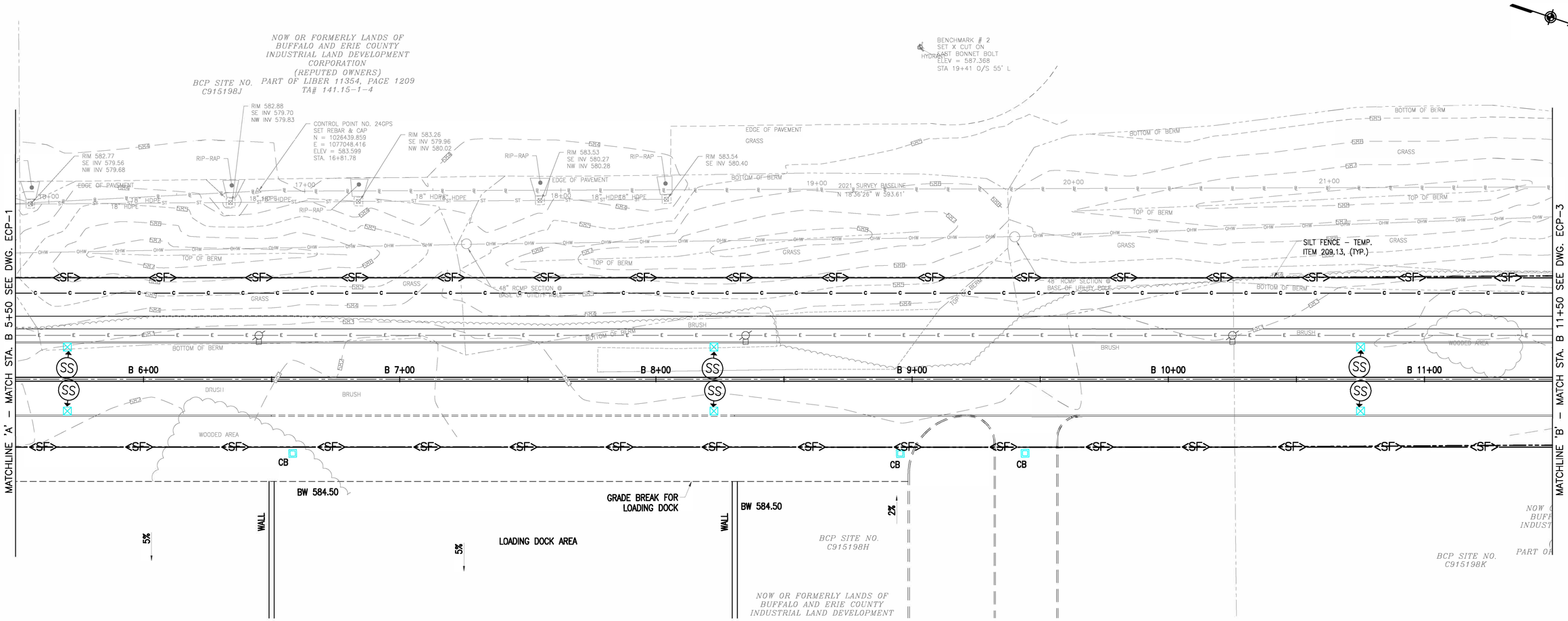
ECIDA/ILDE
95 Perry Street, Suite 403
Buffalo, New York 14203

RENAISSANCE COMMERCE PARK - PUBLIC ROAD B

EROSION AND SEDIMENT CONTROL PLAN

Sheet No.	
Da te	Fe b. 2022
Scale	As Noted
DWG.	ECP-1

RENAISSANCE COMMERCE PARK -
PUBLIC ROAD B
Sheet Number 23 OF 31



0 20 40 60 FT
HORIZONTAL SCALE
1" = 20' SCALE BAR

LEGEND:

<SF> SILT FENCE (TEMPORARY) – 209.13

SS INLET PROTECTION – ITEM 209.1702

NOTES:

1. REFER TO DWG. NO. ECD-01 FOR EROSION CONTROL DETAILS.
2. ALL AREAS DISTURBED DURING CONSTRUCTION SHOULD BE RESTORED AS SOON AS PRACTICAL. DISTURBED AREAS SHALL BE TEMPORARILY SEEDED AND MULCHED IF NEEDED DURING CONSTRUCTION TO PREVENT EROSION.

FoitAlbert ASSOCIATES
Architecture, Engineering, Surveying.

255 Main Street, Suite 200
Buffalo, New York 14203

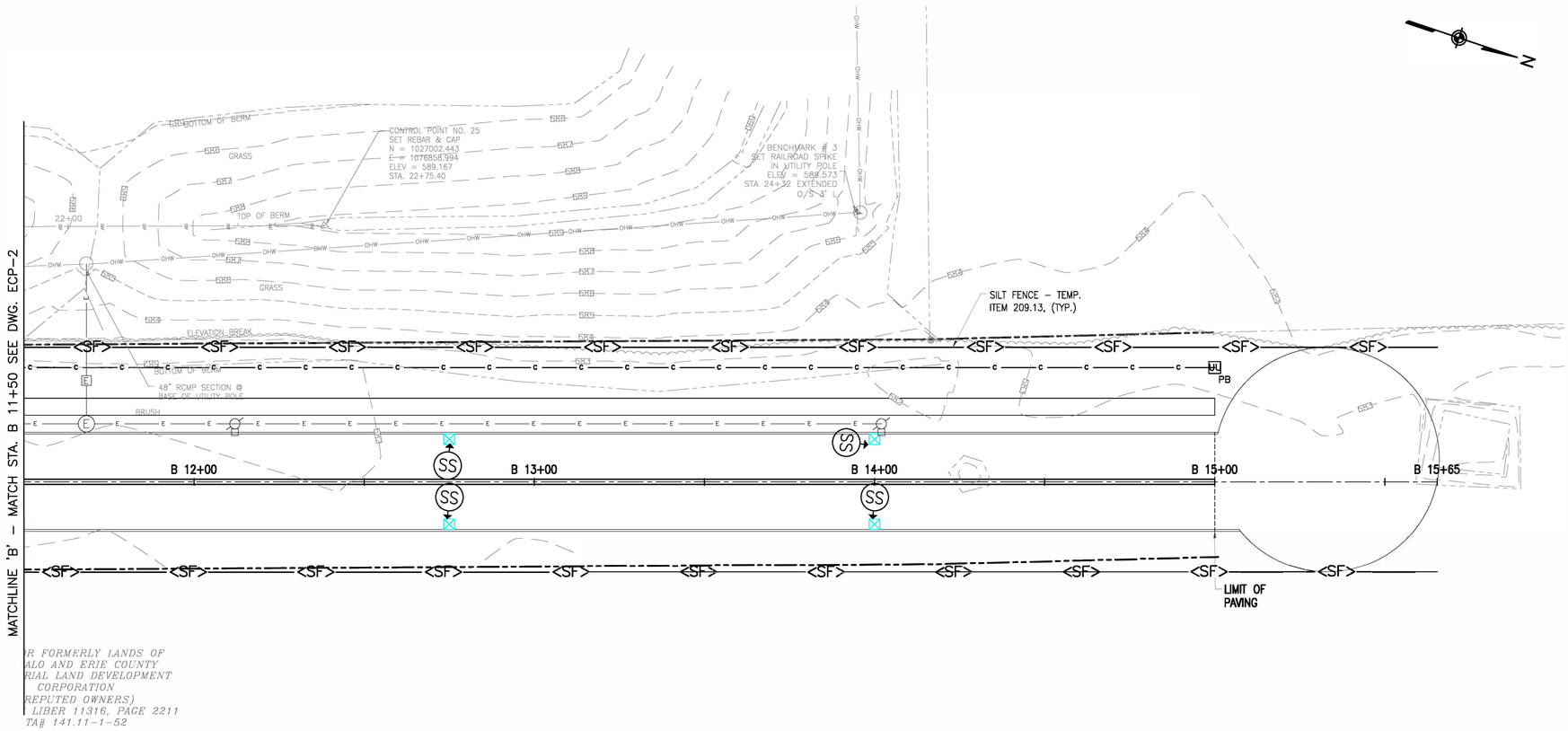
ECIDA/ILDE
95 Perry Street, Suite 403
Buffalo, New York 14203

RENAISSANCE COMMERCE PARK - PUBLIC ROAD B

EROSION AND SEDIMENT CONTROL PLAN

Sheet No.	
Date	Fe b. 2022
Scale	As Noted
DWG.	ECP-2

RENAISSANCE COMMERCE PARK -
PUBLIC ROAD B
Sheet Number 24 OF 31



R FORMERLY LANDS OF
ALO AND ERIE COUNTY
RIAL LAND DEVELOPMENT
CORPORATION
REPUTED OWNERS)
LIBER 11316, PAGE 2211
TA# 141.11-1-52

LEGEND:

—<SF>— SILT FENCE (TEMPORARY) – 209.13

(SS) INLET PROTECTION – ITEM 209.1702

NOTES:

1. REFER TO DWG. NO. ECD-01 FOR EROSION CONTROL DETAILS.
2. ALL AREAS DISTURBED DURING CONSTRUCTION SHOULD BE RESTORED AS SOON AS PRACTICAL. DISTURBED AREAS SHALL BE TEMPORARILY SEEDED AND MULCHED IF NEEDED DURING CONSTRUCTION TO PREVENT EROSION.

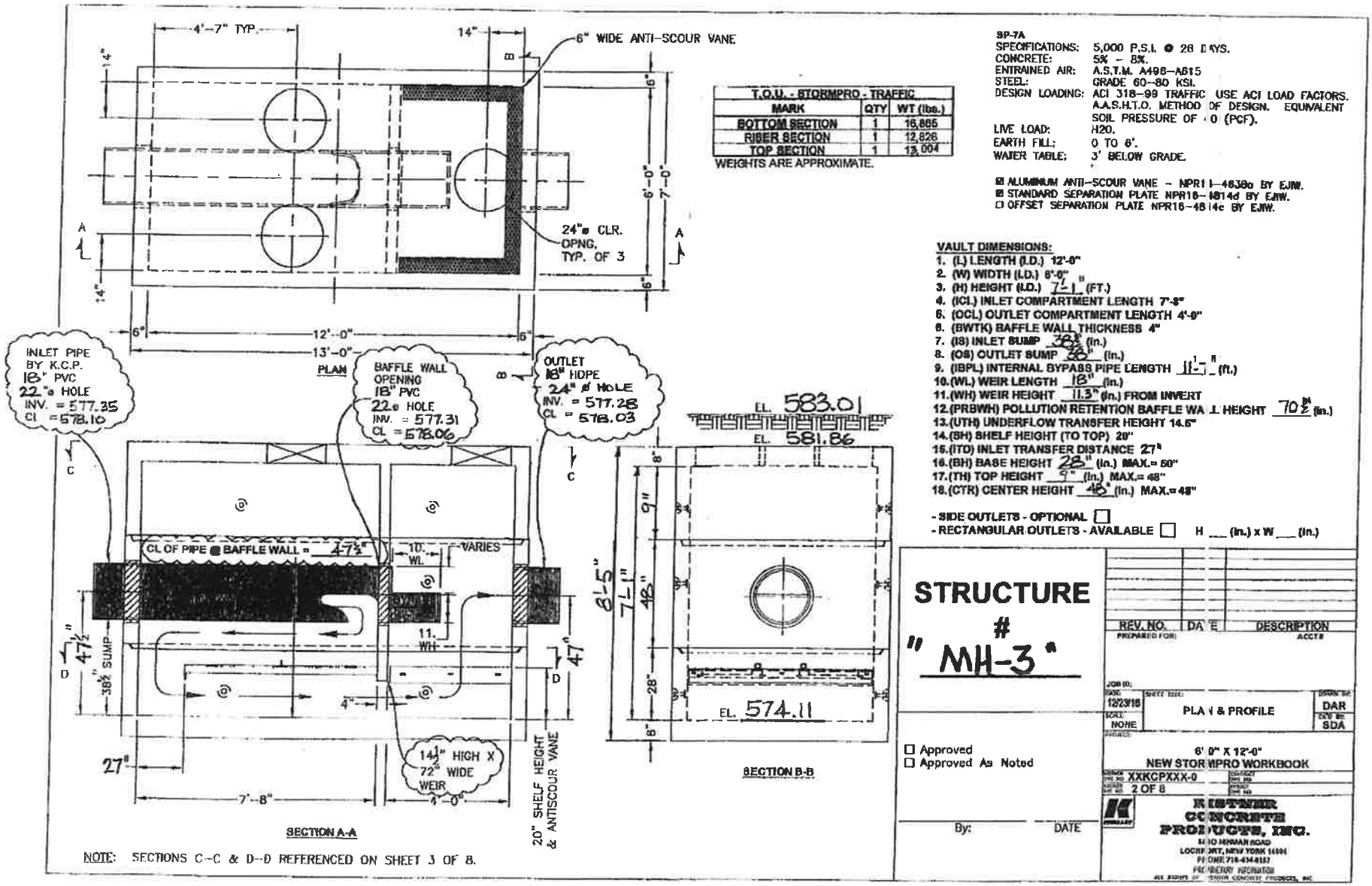
FoitAlbert ASSOCIATES
Architecture
Engineering
Surveying
200 Main Street, Suite 200
Buffalo, New York 14202

ECIDA/ILDE
95 Perry Street, Suite 403
Buffalo, New York 14203

RENAISSANCE COMMERCE PARK - PUBLIC ROAD B

EROSION AND SEDIMENT CONTROL PLAN

Sheet No.	
Da te	Fe b.2022
Scale	As Noted
DWG.	ECP-3



T.O.U. - STORMPRO - TRAFFIC		
MARK	QTY	WT (lbs.)
BOTTOM SECTION	1	16,886
RISER SECTION	1	12,826
TOP SECTION	1	13,004

WEIGHTS ARE APPROXIMATE.

SP-7A
SPECIFICATIONS: 5,000 P.S.I. @ 28 DAYS.
CONCRETE: 5% - 8%.
ENTRAINED AIR: A.S.T.M. A496-A615
STEEL: GRADE 60-80 KSI.
DESIGN LOADING: ACI 318-99 TRAFFIC USE ACI LOAD FACTORS. A.A.S.H.T.O. METHOD OF DESIGN. EQUIVALENT SOIL PRESSURE OF 30 (PCF).
LIVE LOAD: H20.
EARTH FILL: 0 TO 6'.
WATER TABLE: 3' BELOW GRADE.

☒ ALUMINUM ANTI-SCOUR VANE - NPR16-4638a BY EJIW.
☒ STANDARD SEPARATION PLATE NPR16-4814d BY EJIW.
☐ OFFSET SEPARATION PLATE NPR16-4814c BY EJIW.

VAULT DIMENSIONS:
1. (L) LENGTH (I.D.) 12'-0"
2. (W) WIDTH (I.D.) 8'-0"
3. (H) HEIGHT (I.D.) 7'-1" (FT.)
4. (ICL) INLET COMPARTMENT LENGTH 7'-8"
5. (OCL) OUTLET COMPARTMENT LENGTH 4'-0"
6. (BWTK) BAFFLE WALL THICKNESS 4"
7. (IS) INLET SUMP 38½" (in.)
8. (OS) OUTLET SUMP 38" (in.)
9. (IBPL) INTERNAL BYPASS PIPE LENGTH 11'-1" (ft.)
10. (WL) WEIR LENGTH 18" (in.)
11. (WH) WEIR HEIGHT 11.3" (in.) FROM INVERT
12. (PRBWH) POLLUTION RETENTION BAFFLE WALL HEIGHT 70⅝" (in.)
13. (UTH) UNDERFLOW TRANSFER HEIGHT 14.6"
14. (SH) SHELF HEIGHT (TO TOP) 20"
15. (ITD) INLET TRANSFER DISTANCE 27"
16. (BH) BASE HEIGHT 28" (in.) MAX.= 60"
17. (TH) TOP HEIGHT 9" (in.) MAX.= 48"
18. (CTR) CENTER HEIGHT 48" (in.) MAX.= 48"

- SIDE OUTLETS - OPTIONAL ☐
- RECTANGULAR OUTLETS - AVAILABLE ☐ H ___ (in.) x W ___ (in.)

STRUCTURE # "MH-3"

☐ Approved
☐ Approved As Noted

By: DATE

REV. NO.	DATE	DESCRIPTION

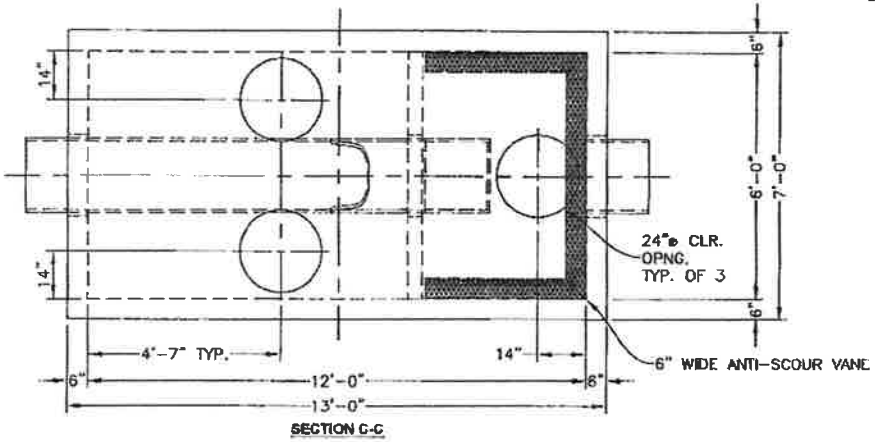
PREPARED FOR: ACCT#

JOB ID:
DATE: 12/23/15
SHEET TITLE: PLAN & PROFILE
DRAWN BY: DAR
SCALE: NONE
CHK'D BY: SDA

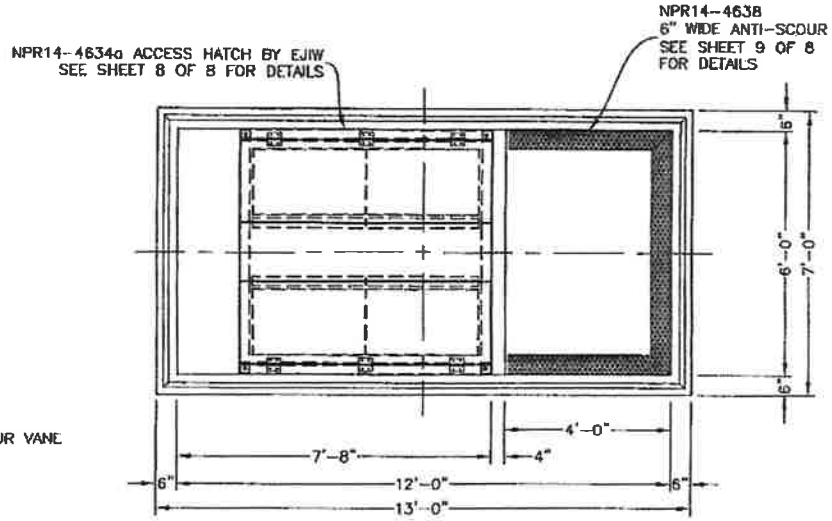
6' 0" X 12'-0"
NEW STORMPRO WORKBOOK
DRAWING NO. XXKCPXXX-0
SHEET NO. 2 OF 8

KRISTNER CONCRETE PRODUCTS, INC.
8410 HINMAN ROAD
LOCKPORT, NEW YORK 14094
PHONE 716-434-8157
PRELIMINARY INFORMATION
ALL RIGHTS OF KRISTNER CONCRETE PRODUCTS, INC.

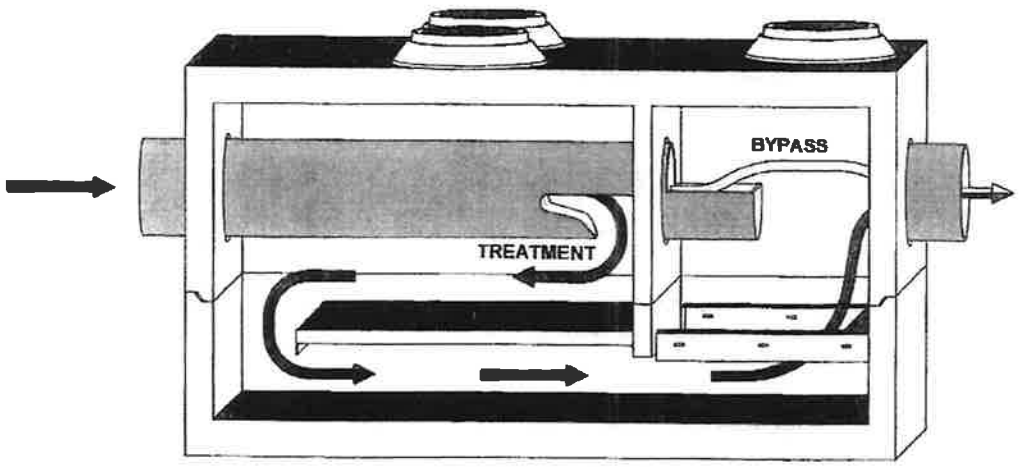
C:\Z\new\gis\Prod art\Workbooks\1024-Square\Rectangular-06x12-7904x4\NEW STORMPRO\6X12XNEWSP.dwg



SECTION C-C



SECTION D-D



STORMPRO TREATMENT CYCLE

NOTE: SECTIONS C-C & D-D REFERENCED FROM SHEET 2 OF 8.

☐ Approved
☐ Approved As Noted

By: DATE

REV. NO.	DATE	DESCRIPTION

PREPARED FOR: ACCT#

JOB #:

DATE: 12/23/16

SHEET TITLE: SECTION VIEWS

DRAWN BY: DAR

SCALE: NONE

CHECKED BY: SDA

PROJECT: 8'-0" X 12'-0" NEW STORMPRO WORKBOOK

DRAWING NO: XXKCPXXX-0

SHEET NO: 3 OF 8

KRISTNER CONCRETE PRODUCTS, INC.
6460 HINMAN ROAD
LOCKPORT, NEW YORK 14094
PHONE 716-434-4197

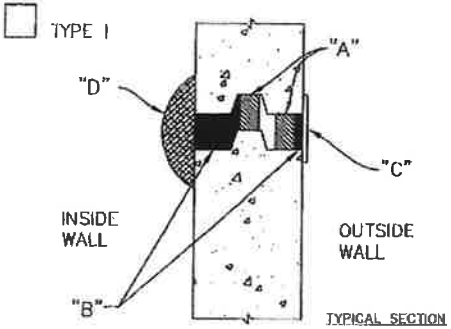
PROPRIETARY INFORMATION
ALL RIGHTS OF KRISTNER CONCRETE PRODUCTS, INC.

D:\Drawings\Product Workbook\024-Sculptured\Singular-06x12-72x144\NEW STORMPRO\6X12X72X144 STP.dwg

KISTNER CONCRETE PRODUCTS INC.
8713 READ ROAD
E. PEMBROKE, N.Y. 14056
(716) 894-2267

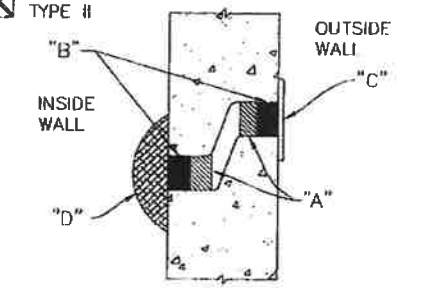
PRODUCT DESIGNATION	DWG. NO.
WATERTIGHT JOINT INSTALLATION PROCEDURE FOR STANDARD PRECAST STRUCTURES - BUTYL WRAP & GROUT	ST-TJD-BW2 © 1--8--15

☐ TYPE I



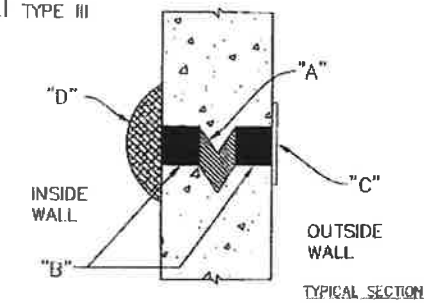
TYPICAL SECTION

☒ TYPE II



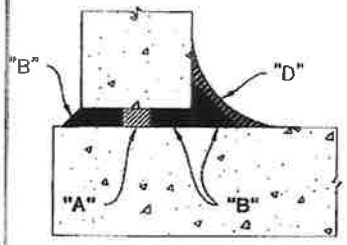
TYPICAL SECTION

☐ TYPE III



TYPICAL SECTION

☐ TYPE IV



TYPICAL SECTION

GENERAL NOTES:

"A" -- JOINT SEALANT BY K.C.P.
"B" -- NONSHRINK GROUT BY G.C. - AVAILABLE UPON REQUEST.
"C" -- 6" BUTYL WRAP -- INSTALLATION BY G.C. -- AVAILABLE UPON REQUEST.
"D" -- TAR BY G.C.

"A", "B" & "C" AVAILABLE THROUGH KISTNER CONCRETE. PURCHASED & INSTALLED BY CONTRACTOR.

JOINT DETAILS FOR WATERTIGHT INSTALLATION.

NOTE: NON-POTABLE INSTALLATIONS ONLY.

ABOVE INFORMATION IS SUPPLIED FOR CONTRACTOR KNOWLEDGE AND IS ONLY ONE OF THE MANY ACCEPTABLE SEALING METHODS IN THE INDUSTRY. CONTRACTOR IS RESPONSIBLE FOR PROPER APPLICATION AND ULTIMATE WATERTIGHT INSTALLATION OF STRUCTURE.

"A" JOINT SEALANT
"BUTYL RUBBER"
MEETS FEDERAL SPECIFICATION
#SS-S-00210 (210-A)
AASHTO M-198
SERVICE TEMP: -65° TO +200°F

PROCEDURE:

1) INSTALL STRUCTURE BOTTOM SECTION.
2) LOCATE 1" SQ. BUTYL JOINT SEALANT "A" PER DETAIL.
3) INSTALL NEXT STRUCTURE SECTION.
4) WATERPLUG "B" INTERIOR & EXTERIOR, ALL GAPS.
5) BUTYL WRAP "C" USING ADHESIVE TO ASSIST DURING APPLICATION (BY CONTR.).

☐ Approved
☐ Approved As Noted

By: DATE

REV. NO.	DATE	DESCRIPTION
PREPARED FOR:		ACCT #

JOB ID:
DATE: 12/23/16
SHEET TITLE: STANDARD DETAILS
DRAWN BY: DAR
SCALE: NONE
CHK'D BY: SDA
PROJECT: 6' 0" X 12'-0" NEW STORMPRO WORKBOOK
DRAWING NO: XXKCPXXX-0
SHEET NO: 4 OF 8

KISTNER CONCRETE PRODUCTS, INC.
8713 READ ROAD
LOCKPORT, NEW YORK 14094
PHONE 716-434-6187
PROPRIETARY INFORMATION
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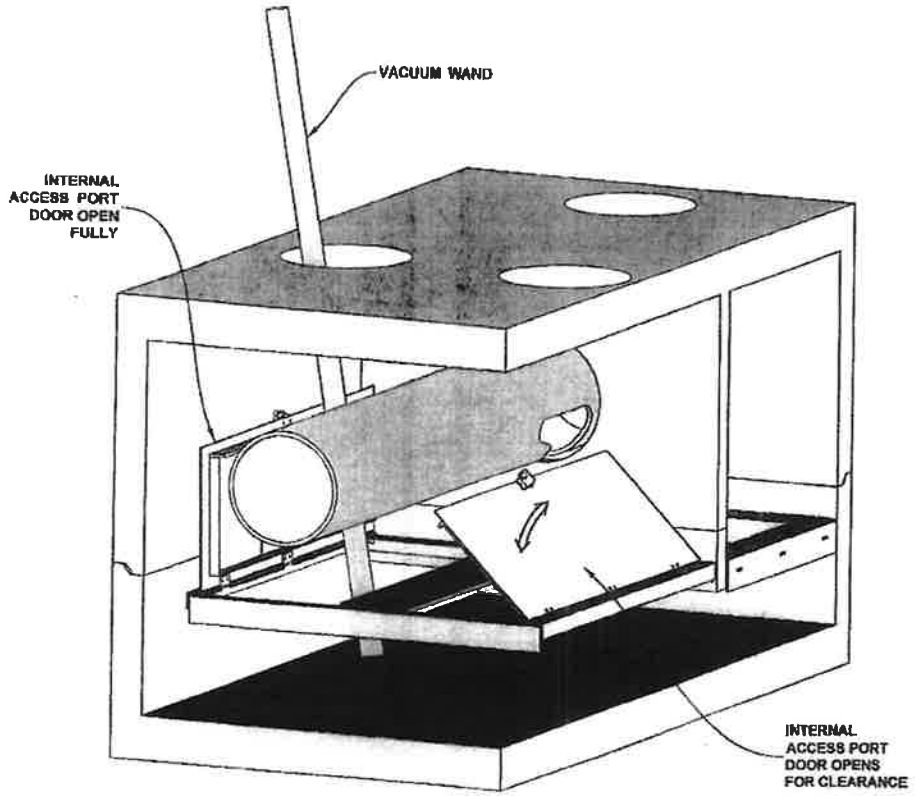


CLEANING/VACUUMING OF STORMPRO UNIT

1) REMOVE CAST IRON LIDS AT GRADE TO ALLOW ACCESS TO BOTH COMPARTMENTS. ROPING OFF OF OPEN MANWAYS IS RECOMMENDED.
2) INSERT VACUUM LINE INTO TANK THROUGH ANY OF THE OPENINGS TO REMOVE LIQUIDS, FLOATABLES AND SOLIDS.
3) REMOVE LIQUID AT LEAST DOWN TO LEVEL OF THE TOP OF THE INTERMEDIATE SHELF.
4) REMOVE GRITS AND SOLID BUILDUP ON TOP OF THE INTERMEDIATE SHELF DOOR(S) TO ALLOW EASE OF LIFTING TO ACCESS LOWER GRIT COLLECTION AREA.
5) USE AN EXTENDABLE POLE WITH A HOOK ON THE END TO ENGAGE THE LOOP HANDLE ON THE DOOR TO ALLOW FOR CLEANING OF LOWER LEVEL.
6) REACH INTO THE FIRST COMPARTMENT THROUGH EACH OPENING(S), LIFT DOORS AND LEAN AGAINST WALL OF STRUCTURE, IN THE OPEN POSITION.
7) VACUUM GRIT AND LIQUID IN LOWER LEVEL OF UNIT.
8) SOME BACKWASHING/JETTING/FLUSHING MAY BE REQUIRED TO FLUSH OUT GRIT IN HARD-TO-REACH AREAS.
9) UPON COMPLETION OF GRIT REMOVAL FROM BOTH CHAMBERS, LOWER INTERMEDIATE SHELF ACCESS DOORS DOWN INTO PLACE.
10) PLACE LIDS BACK INTO FRAMES TO SECURE THE TOP OF STRUCTURE.

☐ Approved
☐ Approved As Noted

By: DATE

REV. NO.	DATE	DESCRIPTION

PREPARED FOR: ACCT #

JOB ID:

DATE: 8/14/17 | SHEET TITLE: STORMPRO ACCESS HATCH PIPE DETAIL | DRAWN BY: DAR

SCALE: NONE | EXCEPT BY: SDA

PROJECT: 6'-0" X 12'-0" NEW STORMPRO WORKBOOK

DRAWING NO. XXKCPXXX-0 | REVISION DWG NO.

SHEET NO. 5 OF 6 | REVISION SHEET NO.

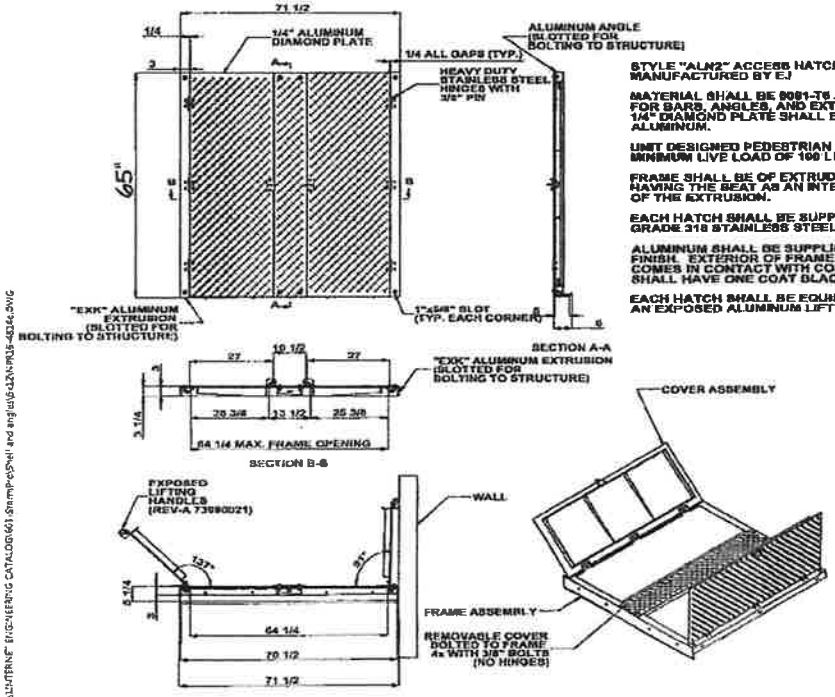
KRISTAR PRODUCTS

KRISTAR CONCRETE PRODUCTS, INC.

8650 HINMAN ROAD
LOCKPORT, NEW YORK 14094

PHONE 716-434-8157

ALN2 - ALUMINUM ACCESS HATCH



STYLE "ALN2" ACCESS HATCH, AS MANUFACTURED BY E.J

MATERIAL SHALL BE 6061-T6 ALUMINUM FOR BARS, ANGLES, AND EXTRUSIONS. 1/4" DIAMOND PLATE SHALL BE 5086 ALUMINUM.

UNIT DESIGNED PEDESTRIAN RATED, FOR A MINIMUM LIVE LOAD OF 100 LBS./SQ.FT.

FRAME SHALL BE OF EXTRUDED ALUMINUM HAVING THE SEAT AS AN INTEGRAL PART OF THE EXTRUSION.

EACH HATCH SHALL BE SUPPLIED WITH GRADE 316 STAINLESS STEEL HINGES.

ALUMINUM SHALL BE SUPPLIED WITH MILL FINISH. EXTERIOR OF FRAME WHICH COMES IN CONTACT WITH CONCRETE SHALL HAVE ONE COAT BLACK PRIMER.

EACH HATCH SHALL BE EQUIPPED WITH AN EXPOSED ALUMINUM LIFT HANDLES.

Product Number
NPR16-4814d

Design Features

Certification

Drawing Revision

Disclaimer

Contact

D:\SALES\ENGR\LAYERNF BIG\CATERPIG CATALOG\6061 Aluminum Shell and angle\ALN2\PRJS-4814d.dwg

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☐ Approved As Noted

By: DATE

REV. NO.	DATE	DESCRIPTION

PREPARED FOR: ACCT #

JOB ID:

DATE:	12/23/16
SCALE:	NONE
SHEET TITLE:	ACCESS HATCH DETAILS
DRAWN BY:	DAR
CHK'D BY:	SDA
PROJECT:	6'-0" X 12'-0" NEW STO MPRO WORKBOOK
DRAWING NO.	XXKCPXXX-0
SHEET NO.	6 OF 8

KRISTAR

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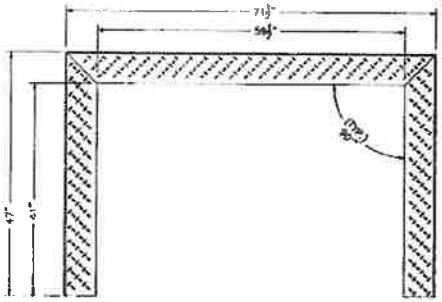
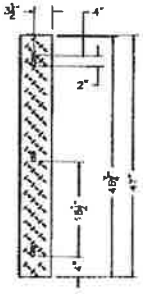
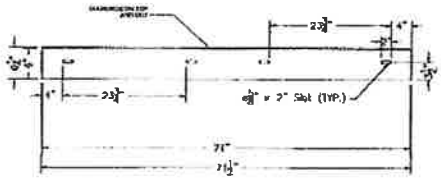
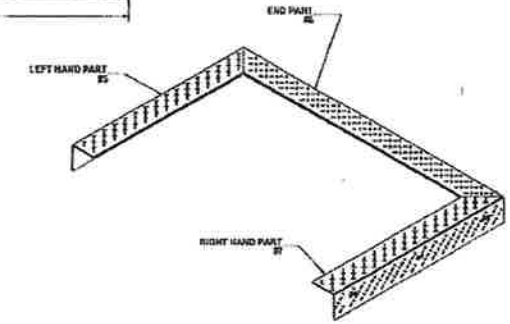
6440 HINMAN ROAD PHONE 716-434-8157
LOCKPORT, NEW YORK 14094

D:\J Jobs\Product Workbooks\1024-Sales Mechanical\-05x12-72K-r4\DV STORM PRO\6X12x5V5P.dwg









ej

Product Number
NPR14-4638a

Design Features
-Materials
8061 & 5086 Aluminum
-Design Load
100 psf
-Open Area

-Coating
Mill Finish
-√Designates Machined Surface

Certification
- NPR14-4638
- WT 48 lbs
-
-Country of Origin: USA

Drawing Revision
11/19/2014 Designer: SB
12/2/14 Revised By: SB

Disclaimer
Weights (loading), dimensions (approximate) and drawings provided for your guidance. We reserve the right to modify specifications without prior notice.

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800 626 4653
ejco.com

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By: DATE

REV. NO.	DATE	DESCRIPTION

PREPARED FOR: ACCT #

JOB ID:

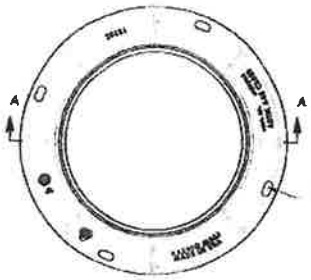
DATE: 12/23/15
SCALE: NONE
SHELF DETAILS
DRAWN BY: DAR
CHKD BY: SDA

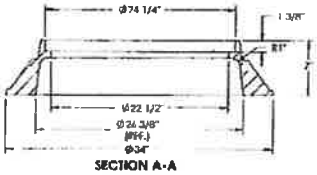
6'-0" X 12'-0"
NEW STORMPRO WORKBOOK

FORMAT: XXKCPXXX-0
SHEET NO.: 7 OF 8

KISTNER CONCRETE PRODUCTS, INC.
8850 HINMAN ROAD
LOCKPORT, NEW YORK 14094
PHONE 716-434-6157

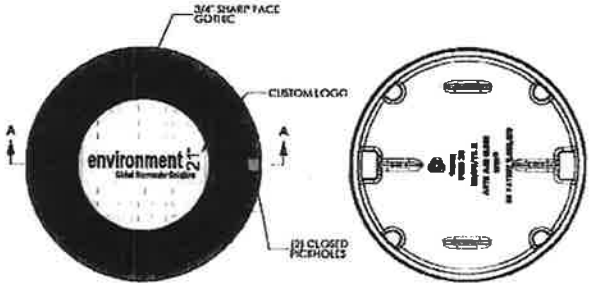
1310 Frame



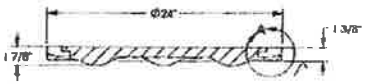


SECTION A-A

1310A2 Cover



BOTTOM VIEW



SECTION A-A

DETAIL A
PICKHOLE

PRELIMINARY

☐ Approved
☐ Approved As Noted

By: DATE

REV. NO.	DATE	DESCRIPTION

PREPARED FOR: ACCT #

JOB ID:

DATE: 7/7/17
SCALE: NONE
SHEET TITLE: EJ 1310 FRAME & COVER DETAILS
DRAWN BY: DAR
CHK'D BY: SDA
PROJECT: 6'-0" X 12'-0" NEW STORMPRO WORKBOOK
ARTWORK DWG NO: XXKCPXXX-0
SHEET NO: 8 OF 8

DIETZNER CONCRETE PRODUCTS, INC.
8880 HINMAN ROAD LOCKPORT, NEW YORK 14094
PHONE 716-694-6147

INTERIM EXCAVATION WORK PLAN NOTES:

1. ALL EXCAVATION WORK ASSOCIATED WITH THIS PROJECT SHALL BE IN ACCORDANCE WITH THE INTERIM EXCAVATION WORK PLAN FOR THE PHASE II BUSINESS PARK AREA, LACKAWANNA, NEW YORK DATED FEBRUARY 2013, REVISED JULY 2021.

2. THE INTERIM EXCAVATION WORK PLAN (EWP) HAS BEEN PREPARED BY TURNKEY ENVIRONMENTAL RESTORATION LLC IN ACCORDANCE WITH THE NYSDEC PROGRAM POLICY DER-10, SECTION 6.1(b), INTERIM SITE MANAGEMENT. THE INTERIM EWP WILL BE FOLLOWED DURING ALL GROUND INTRUSIVE ACTIVITIES CONDUCTED DURING THE SITE PREPARATION WORK INCLUDING EXCAVATING FOR UTILITY LINES, GRADING WORK, AND GENERAL SITE WORK.

3. AT LEAST 15 DAYS PRIOR TO THE START OF ANY ACTIVITY THAT IS ANTICIPATED TO ENCOUNTER REMAINING CONTAMINATION, THE CONTRACTOR WILL NOTIFY THE NYSDEC. NOTIFICATION WILL BE MADE TO ANDREW ZWACK, ASSISTANT ENGINEER, NYSDEC – REGION 9, 270 MICHIGAN AVENUE, BUFFALO, NY 14203-2999.

4. NOTIFICATION SHALL INCLUDE;

   a. A DETAILED DESCRIPTION OF THE WORK TO BE PERFORMED INCLUDING THE LOCATION AND AREA EXTENT; PLANS FOR SITE RE-GRADING, INTRUSIVE ELEMENTS OR UTILITIES TO BE INSTALLED BELOW THE SOIL COVER; ESTIMATED VOLUMES OF CONTAMINATED SOIL TO BE EXCAVATED; AND ANY WORK THAT MAY IMPACT AN EXISTING ENGINEERING CONTROL. APPROPRIATE LOCATIONS FOR STAGING AND STOCKPILING OF NON-IMPACTED SOIL/FILL MATERIALS WILL ALSO BE IDENTIFIED.

   b. A SUMMARY OF ENVIRONMENTAL CONDITIONS ANTICIPATED IN THE WORK AREAS, INCLUDING THE NATURE AND CONCENTRATION LEVELS OF CONTAMINANTS OF CONCERN, POTENTIAL PRESENCE OF GROSSLY CONTAMINATED MEDIA, AND PLANS FOR ANY PRE-CONSTRUCTION SAMPLING.

   c. A SCHEDULE FOR THE WORK, DETAILING THE START AND COMPLETION OF ALL INTRUSIVE WORK.

   d. A SUMMARY OF THE APPLICABLE COMPONENTS OF THE INTERIM EWP.

   e. A STATEMENT THAT THE WORK WILL BE PERFORMED IN COMPLIANCE WITH THIS INTERIM EWP AND 29 CFR 1910.120.

   f. A COPY OF THE CONTRACTOR'S HEALTH AND SAFETY PLAN, IN ELECTRONIC FORMAT, IF IT DIFFERS FROM THE SITE-WIDE HASP.

   g. IDENTIFICATION OF DISPOSAL FACILITIES FOR POTENTIAL WASTE STREAMS.

   h. IDENTIFICATION OF SOURCES OF ANY ANTICIPATED BACKFILL, ALONG WITH ALL REQUIRED ANALYTICAL TESTING RESULTS.

SOIL SCREENING SEGRATION METHODS:

1. VISUAL, OLFACTYORY, AND/OR INSTRUMENT (PHOTOIONIZATION DETECTOR OR EQUIVALENT) BASED, SOIL SCREENING WILL BE PERFORMED BY A QUALIFIED ENVIRONMENTAL PROFESSIONAL (QEP), AS DEFINED BY NYSDEC IN DER-10 SECTION 1.3(b)49, DURING ALL INTRUSIVE ACTIVITIES.

2. IF FIELD EVIDENCE OF POTENTIALLY IMPACTED SOIL/FILL IS ENCOUNTERED DURING INTRUSIVE WORK, THE NYSDEC PROJECT MANAGER SHALL BE CONTACTED AND THE CONTRACTOR WILL BE DIRECTED TO STOCKPILE THE MATERIAL ON POLYETHYLENE SHEETING IN AN ACCEPTABLE LOCATION NEAR THE IMPACTED AREA. THE LOCATION OF STAGED, MATERIALS SHALL BE COORDINATED WITH THE OWNER, BUT SHALL REMAIN WITHIN THE SAME BUSINESS PARK SITE WHERE SOIL LAYDOWN AREA FOR PUBLIC ROAD B HAS BEEN ESTABLISHED. PAID FOR UNDER ITEM 205.0201.

STOCKPILE METHODS:

1. STOCKPILE SOILS SHALL BE SEGRAGATED BASED ON FIELD SCREENING AND ITS STATUS AT THE TIME OF THE EXCAVATION WORK, INTO MATERIAL THAT CAN BE USED AS POTENTIAL COVER MATERIAL (NON-IMPACTED MATERIAL THAT CAN BE RETURNED TO THE SUBSURFACE AT PARCEL II-6, ONLY AFTER TESTING AND/OR APPROVAL BY NYSDEC) OR IMPACTED MATERIAL THAT REQUIRES TREATMENT OF OFF-SITE DISPOSAL.

2. A CONTINUOUS BERM AND/OR SILT FENCE WILL BE PLACED AROUND SOIL/FILL STOCKPILES. HAY BALES WILL BE USED AS NEEDED NEAR CATCH BASINS, SURFACE WATERS, AND OTHER DISCHARGE POINTS. STOCKPILES WILL BE COVERED AT ALL TIMES WITH APPROPRIATELY ANCHORED TARPS OR POLY SHEETING. STOCKPILES WILL ROUTINELY INSPECTED AT A MINIMUM ONCE A WEEK AND AFTER STORM EVENT. DAMAGED TARP COVERS WILL BE PROMPTLY REPLACED. PAID UNDER ITEM 205.0201.

MATERIAL EXCAVATION AND LOAD OUT:

1. A QEP, OR PERSON UNDER THEIR SUPERVISION, WILL MONITOR ALL INTRUSIVE WORK AND THE EXCAVATION AND LOAD-OUT OF ALL EXCAVATED MATERIALS.

2. LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE SHALL BE INSPECTED DAILY FOR EVIDENCE OF OFF-SITE TRACKING. THE QEP WILL RE RESPONSIBLE FOR ENSURING THAT ALL EGRESS POINTS FOR TRUCK AND EQUIPMENT TRANSPORT FROM THE SITE ARE CLEAN OF DIRT AND OTHER MATERIALS DERIVED FROM THE SITE DURING INTRUSIVE EXCAVATION ACTIVITIES.

MATERIAL REUSE ON-SITE:

SOIL/FILL:

ON-SITE REUSE OF SOIL/FILL MATERIAL IS ACCEPTABLE PROVIDED THAT THE MATERIAL DOES NOT EXHIBIT VISUAL OR OLFACTORY EVIDENCE OF CONTAMINATION AND PID MEASUREMENS OF THE ATMOSPHERE AT THE SOIL/FILL INTERFACE DO NOT EXCEED 5PPM ABOVE BACKGROUND. THE QEP WILL ENSURE THAT PROCEDURES DEFINED FOR MATERIALS REUSE ARE FOLLOWED AND THAT UNACCEPTABLE MATERIAL DOES NOT REMAIN ON-SITE. ON-SITE MATERIAL, INCLUDING HISTORIC FILL, THAT IS ACCEPTABLE FOR RE-USE ON-SITE WILL BE PLACED BELOW THE ENGINEERED COVER DEMARCATION LAYER OR IMPERVIOUS SURFACE (IF IN PLACE AT THE TIME OF EXCAVATION), AND WILL NOT BE REUSED WITHIN A COVER SOIL LAYER, WITHIN LANDSCAPING BERMS, OR AS BACKFILL FOR SUBSURFACE UTILITY LINES.

PETROLEUM-IMPACTED SOIL/FILL:

PETROLEUM-IMPACTED SOIL/FILL SUITABLE FOR ON-SITE BIOREMEDIATION (e.g., MATERIALS IMPACTED BY NON-TARRY PETROLEUM HYDROCARBONS) MAY BE TRANSPORTED, WITH NYSDEC APPROVAL, TO A DESIGNATED PORTION OF THE TECUMSEH PROPERTY (SPECIFICALLY ONE OF THE BUSINESS PARKS) FOR BIOTREATMENT. QUALITATIVE ASSESSMENT OF TREATMENT PERFORMANCE WILL BE MADE BASED ON FIELD ASSESSMENT OF VISUAL AND OLFACTORY CONDITIONS, WITH THE GOAL OF ELIMINATING GROSS IMPACTS. ONCE THE SOIL/FILL IS CONSIDERED TREATED, CONFIRMATORY SAMPLES WILL BE COLLECTED AT A FREQUENCY OF NO LESS THAN ONE PER 1,000 CUBIC YARDS OF TREATED SOIL/FILL. THE SAMPLES WILL BE ANALYZED FOR USEPA TARGET COMPOUND LIST (TCL) VOLATILE ORGANIC COMPOUNDS (VOCs) AND BASE-NEUTRAL SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs) AND COMPARED TO SCOs TO BE DETERMINED WITHIN AN ACTION-SPECIFIC SOIL BIOTREATMENT WORK PLAN SUBJECT TO NYSDEC APPROVAL. ONCE THE SAMPLES MEET THESE SCOs, THE TREATED SOIL/FILL WILL BE REMOVED AND PREFERABLY TRANSFERRED BACK TO THE ORIGINAL EXCAVATED SITE AS SUBGRADE MATERIAL; BIOREMEDIATED SOIL/FILL WILL BE TRANPORTED OFF-SITE UNLESS DEEMED NECESSARY DUE TO POOR TREATMENT RESPONSE. IN SUCH INSTANCE THE MATERIAL WILL BE DISPOSED, WITH NYSDEC APPROVAL, IN ACCORDANCE WITH SECTION 3.3.

DEBRIS:

ANY DEMOLITION MATERIAL PROPOSED FOR REUSE ON-SITE WILL BE SAMPLED FOR ASBESTOS AND RESULTS WILL BE REPORTED TO THE NYSDEC FOR ACCEPTANCE. CONCRETE CRUSHING OR PROCESSING ON-SITE WILL NOT BE PERFORMED WITHOUT PRIOR NYSDEC APPROVAL. ORGANIC MATTER (WOOD, ROOTS, STUMPS, ETC.) OR OTHER SOLID WASTE DERIVED FROM CLEARING AND GRUBBING OF THE SITE WILL NOT BE REUSED ON-SITE WITHOUT PRIOR NYSDEC APPROVAL.

SLAG:

SLAG PROPOSED FOR REUSE ON-SITE WILL BE FIELD SCREENED WITH A 2x2 METER OR EQUIVALENT FOR GAMMA RADIATION VIA TEST PAD. IF FIELD-SCREENING MEASUREMENTS ARE 1.5 TIMES BACKGROUND FOR THE CONTROLLED PROPERTY, THE SLAG WILL BE STOCKPILED AND EVALUATED FOR TENORM. BACKGROUND LEVELS FOR THE CONTROLLED PROPERTY ARE APPROXIMATELY 5,000 COUNTS PER MINUTE (cpm). THEREFORE, SLAG MEASUREMENTS BELOW 7,500 cpm WILL NOT REQUIRE FURTHER EVALUATION FOR REUSE. SCREENING LEVELS ABOVE 7,500 cpm WIL REQUIRE SUBMISSION OF AN ACTION-SPECIFIC WORK PLAN TO ADDRESS ADDITIONAL SCREENING, SAMPLING, ANALYSIS, AND HANDLING OF ELEVATED RADIOLOGICAL MATERIAL. NYSDEC AND NYSDOH WILL BE NOTIFIED OF ANY SCREENING LEVEL EXCEEDANCES. TEST PADS WILL BE CONSTRUCTED ON AN APPROXIMATELY 5-FOOT BY 5-FOOT BY 1-INCH THICK STEEL PLATE. SLAG PROPOSED FOR REUSE WILL BE USED TO CREATE TEST PADS TO EVALUATE THE SLAG. ONE TEST PAD WILL BE CONSTRUCTED FOR EVERY 250 CUBIC YARDS OF SLAG PROPOSED FOR REUSE UNLESS A DIFFERENT FREQUENCY IS APPROVED BY NYSDEC. SLAG WILL BE PLACED ON THE STEEL PLATE IN APPROXIMATE 6 TO 8-INCH THICK LIFT.

THE 5-FOOT BY 5-FOOT SLAG PLACEMENT AREA WILL BE SCREENED WITH THE 2x2 METER TO IDENTIFY LOCATION WITH THE "HIGHEST" COUNT RATE BASED ON THE SCREENING. A 1-MINUTE COUNT MEASUREMENT WILL BE COLLECTED FROM THE HIGHEST SCREENING LOCATION AND ANALYZED FOR RADIUM-226 VIA EPA METHOD 901.1M (21-DAY INGROWTH). THE RESULTS OF THE ANALYSIS WILL BE PROVIDED TO THE DEPARTMENT AND THE DECISION TO REUSE THE SLAG AND/OR ITS FINAL DISPOSITION WILL BE MADE IN CONSULTATION WITH AND PURSUANT TO APPROVAL BY THE DEPARTMENT. SLAG CONTAINING RADIUM-226 CONCENTRATIONS GREATER THAN 5 PICOCURIE PER GRAM WILL NOT BE ALLOWABLE FOR USE AS BACKFILL OR COVER ON ANY PORTION OF THE SITE. FIELD MEASUREMENTS AND ANALYSIS WILL BE PAID UNDER ITEM E205.0401 CONTAMINATED MATERIAL ANALYSIS. MATERIAL REMOVED OFF-SITE WILL BE PAID AS AN AGREED PRICE UNDER ITEM 697.03 FIELD CHANGE PAYMENT.

FLUID MANAGEMENT:

1. ANY LIQUIDS, INCLUDING TRUCK WASH WATER, NOT VERIFIED BY QEP TO BE VISUALLY FREE OF ANY PRODUCT, NON-AQUEOUS PHASE LIQUID, ODOR, OR OTHER VISUAL INDICATIONS WILL NOT BE RECHARGE BACK TO THE LAND SURFACE OR SUBGRADE OF THE SITE UNLESS TREATED TO RENDER ACCEPTABLE FOR DISCHARGE AS APPROVED BY THE NYSDEC. IF ANY FLUID HAS BEEN DEEMED UNSUITABLE FOR RECHARGE, THE COST FOR REMOVAL AND DISPOSAL WILL BE PAID AT AN AGREED PRICE UNDER ITEM 697.03 – FIELD CHANGE PAYMENT.

2. EXCAVATION DE-WATERING VERIFIED BY THE EIC TO BE VISUALLY FREE OF IMPACT SA DEFINED BY NOTE 1, MAYBE DISCHARGED BACK TO THE ON-SITE LAND SURFACE. IF GROUNDWATER IS ENCOUNTERED THAT EXHIBITS SIGNS OF IMPACT, REMOVAL OF THE WATER FROM THE SITE WILL BE PAID AT AN AGREED PRICE UNDER ITEM 697.03 – FIELD CHANGE PAYMENT.

COVER MATERIALS:

1. A MINIMUM OF 12 INCHES OF NYSDEC APPROVED COVER MATERIAL SHALL BE PLACED OVER ANY UNPAVED AREAS OF THE SITE AS A COMPONENT OF THE FINAL REMEDY. THE UPPER 6 INCHED OF ANY SOIL COVER MUST BE SUITABLE QUALITY TO SUPPORT VEGETATION. IN GENERAL, THIS WOULD BE A WELL-GRADED TOPSOIL WITH A Ph OF 5.5 TO 7.6, A MINIMUM ORGANIC CONTENT OF 2.5%, AND A SOLUBLE SALT CONTENT NOT GREATER THAN 500 ppm.

2. THE DEMARCATION LAYER SHALL BE PLACED TO PROVIDE A VISUAL REFERENCE TO THE TOP OF THE REMAINING IN-PLACE MATERIAL.

BACKFILL FROM OFF-SITE SOURCES:

1. OFF-SITE SOIL/FILL MAY BE USED AS BACKFILL PROVIDED THAT IT ORIGINATES FROM;

   a. AN NYSDEC APPROVED BORROW SITE; OR

   b. A KNOWN SOURCE HAVING NO EVIDENCE OF DISPOSAL OR RELEASES OF HAZARDOUS SUBSTANCES, HAZARDOUS, TOXIC OR RADIOACTIVE WASTES, OR PETROLEUM.

2. IN BOTH INSTANCES THE IMPORTED SOIL MUST BE TESTED AND DEMONSTRATED TO MEET THE CRITERIA SHOWN ON TABLE B-1 IN ACCORDANCE WITH APPENDIX 5 OF DER-10. IN ADDITION, NO OFF-SITE MATERIALS MEETING THE DEFINITION OF A SOLID WASTE AS DEFINED IN 6 NYCRR, PART 360-1.2 (a) SHALL BE USED AS BACKFILL THE CRITERIA PRESENTED IN TABLE B-1 REPRESENTS THE LESSER OF THE COMMERCIAL SOIL CLEANUP OBJECTIVES (SCO's) OR LEVELS OF GROUNDWATER QUALITY AS PUBLISHED IN 6 NYCRR PART 375-6.7(d)(c) AND 375-6.8.

3. CERTAIN MATERIAL MAY BE IMPORTED AS BACKFILL, WITHOUT CHEMICAL TESTING, PROVIDED IT CONTAINS LESS THAN 10% (BY WEIGHT) MATERIAL THAT WOULD PASS THROUGH A SIZE 80 SIEVE:

   a. ROCK OR STONE, CONSISTING OF VIRGIN MATERIAL FROM A PERMITTED OR QUARRY.

   b. STEEL SLAG UNDER BUD #555-9-15 WITH NYSDEC APPROVAL.

   C. RECYCLED CONCRETE, BRICK, OR ASPHALT FROM A NYSDEC-REGISTERED OR PERMITTED C&D DEBRIS PROCESSING FACILITY (AS SPECIFIED IN SECTION 360-16.1 OF 6 NYCRR PART 360) THAT CONFORMS TO SECTION 304 OF THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS CONSTRUCTION AND MATERIALS VOLUME 1 (2002). AS STATED IN SECTION 360-16.4(b)(2), THE FACILITY MAY ONLY ACCEPT RECOGNIZABLE, UNCONTAMINATED, NON-PULVERIZED C&D DEBRIS OR C&D DEBRIS FROM OTHER AUTHORIZED C&D PROCESSING FACILITIES. ACCORDING TO SECTION 360-16.2(C), "UNCONTAMINATED" MEANS C&D DEBRIS THAT IS NOT MIXED OR COMMINGLED WITH OTHER SOLID WASTE AT THE POINT OF GENERATION, PROCESSING, OR DISPOSAL, AND THAT IS NOT CONTAMINATED WITH SPILLS OF A PETROLEUM PRODUCT, HAZARDOUS WASTE, OR INDUSTRIAL WASTE.

4. AS INDICATED ABOVE, OFF-SITE BORROW SOILS SHALL BE TESTED TO ASSURE CONFORMANCE WITH THE CRITERIA IDENTIFIED ON TABLE B-1. A TIERED APPROACH BASED ON THE VOLUME OF IMPACTED SOIL/FILL BEING EXCAVATED WILL BE USED TO DETERMINE THE FREQUENCY OF CHARACTERIZATION SAMPLING IN ACCORDANCE WITH DER-10 OR AS PRE-APPROVED BY THE NYSDEC.

5. THE SOIL/FILL SAMPLES WILL BE ANALYZED FOR USEPA TARGET COMPOUND LIST (TCL), VOCs, TCL SVOCs, PESTICIDES, PCBs, AS WELL AS SELECT METALS 1 AND CYANIDE IN ACCORDANCE WITH USEPA SW-846 METHODOLOGY BY A NYSDOH ELAP-CERTIFIED LABORATORY. ADDITIONALLY, SOIL/FILL SAMPLES WILL BE TESTED FOR PER AND POLYFLUOROAKLY SUBSTANCES (PFAS) IN ACCORDANCE WITH THE DEPARTMENT'S LATEST PROTOCOLS2. ANALYTICAL RESULTS WILL BE COMPARED TO TABLE B-1 CRITERIA AND PROVIDED TO THE NYSDEC AS PART OF THE APPROVAL PROCESS AND REPORTED IN THE PRR. ANALYTICAL RESULTS MUST BE MAINTAINED ON FILE FOR REVIEW IN SUPPORT OF THE PERIODIC INSTITUTIONAL AND ENGINEERING CONTROL (IC/EC) CERTIFICATION REQUIRED AS PART OF THE FINAL SMP.

6. SOILS THAT MEET 'EXEMPT' FILL REQUIREMENTS UNDER 6 NYCRR PART 360, BUT DO NOT MEET BACKFILL OR COVER SOIL OBJECTIVES FOR THIS SITE, WILL NOT BE IMPORTED ONTO THE SITE WITHOUT PRIOR APPROVAL BY NYSDEC. SOLID WASTE WILL NOT BE IMPORTED ONTO THE SITE. ALL MATERIALS PROPOSED FOR IMPORT ONTO THE SITE WILL BE APPROVED BY THE QEP AND IN COMPLIANCE WITH THE PROVISIONS OF THIS EWP PRIOR TO RECEIPT AT THE SITE. A REQUEST TO IMPORT/REUSE FILL OR SOIL FORM3 WILL BE PREPARED AND SUBMITTED TO THE NYSDEC PROJECT MANAGER ALLOWING A MINIMUM OF 5 BUSINESS DAYS FOR REVIEW. TRUCKS ENETRING THE SITE WITH IMPORTED SOILS WILL BE SECURELY COVERED WITH TIGHT FITTING COVERS. IMPORTED SOILS WILL BE STOCKPILED SEPARATELY FROM EXCAVATED MATERIALS AND COVERED TO PREVENT DUST RELEASES.

CONTINGENCY PLAN:

1. IF UNDERGROUND TANKS OR OTHER PREVIOUSLY UNIDENTIFIED CONTAMINANT SOURCES ARE FOUND DURING INTRUSIVE ACTIVITIES, EXCAVATION ACTIVITIES WILL BE SUSPENDED UNTIL EQUIPMENT IS MOBILIZED TO ADDRESS THE CONDITION.

2. SAMPLING WILL BE PERFORMED ON PRODUCT, SEDIMENT, AND SURROUNDING SOILS AS NECESSARY TO DETERMINE THE NATURE OF THE MATERIAL AND PROPER DISPOSAL METHOD. CHEMICAL ANALYSIS WILL BE PERFORMED FOR A COMPREHENSIVE LIST OF ANALYTES (RCRA METALS, TCL, VOCs, SCOC's, AND PCB's, AND CYANIDE), UNLESS THE SITE HISTORY AND PREVIOUS SAMPLING RESULTS PROVIDE A SUFFICIENT JUSTIFICATION TO LIMIT THE LIST OF ANALYTES. SAMPLING TO BE PAID FOR UNDER ITEM 205.0402.

3. IDENTIFICATION OF UNKNOWN OR UNEXPECTED CONTAMINATED MEDIA IDENTIFIED BY SCREENING DURING INTRUSIVE ACTIVITIES WILL BE PROMPTLY COMMUNICATED BY PHONE TO NYSDEC PROJECT MANAGER. REPORTABLE QUANTITIES OF PERTROLEUM PRODUCT WILL BE REPORTED TO NYSDEC SPILLS HOTLINE. DISPOSAL COSTS WILL BE PAID BY AN AGREED PRICE UNDER ITEM 697.03 – FIELD CHANGE PAYMENT.

SITE MANAGEMENT NOTES:

CONTRACTOR SHALL COMPLY WITH REQUIREMENTS OF THE FOLLOWING SITE MANAGEMENT PLANS (SMPS) AVAILABLE FROM: ANDREW ZWACK, ASSISTANT ENGINEER, NYSDEC–REGION 9, 270 MICHIGAN AVENUE, BUFFALO, NY 14203. OFFICE: 716.851.7226

a. BROWNFIELD CLEANUP PROGRAM, SITE MANAGEMENT PLAN, TECUMSEH PHASE I BUSINESS PARK, NYSDEC SITE NUMBERS: C915197 THROUGH C915198L, LACKAWANNA, NEW YORK.

b. BROWNFIELD CLEANUP PROGRAM, SITE MANAGEMENT PLAN, TECUMSEH PHASE II BUSINESS PARK, NYSDEC SITE NUMBERS C915198 THROUGH C915198L. LACKAWANNA, NEW YORK, JANUARY 2014 REVISED JULY 2021.

THE SMPS STATE THAT EXPOSURE TO REMAINING CONTAMINATION IN SOIL/FILL WILL BE PREVENTED BY A COVER SYSTEM. THE COVER SYSTEM IS TO BE COMPRISED OF A MINIMUM OF 12 INCHES OF CLEAN SOIL, STONE OR NYSDEC–APPROVED MATERIALS, WITH A DEMARCATION LAYER (I.E. GEOTEXTILE FABRIC, ORANGE POLY NETTING, OR SIMILAR NONDEGRADABLE VISUAL DEMARCATION) IN ALL AREA THAT ARE NOT PAVED OR COVERED BY CONCRETE OR STRUCTURES. AREAS WITHIN THE RIGHT –OF–WAY WILL INCLUDE A COVER SYSTEM COMPLYING WITH THE SMPS.

THE EXCAVATION WORK PLANS FROM THE SMPS (APPENDIX B), DEFINE THE SCREENING, SEGREGATION, STOCKPILING, FLUID MANAGEMENT, EXCAVATION, TRANSPORTATION,DISPOSAL AND REUSE REQUIREMENTS TO MANAGE SOIL/FILL ON THE BCP PROPERTY.

AN UNDERDRAIN WILL BE INSTALLED AS SHOWN ON THE PLAN, THE UNDERDRAIN WILL DISCHARGE TO THE STORMWATER SEWER SYSTEM IN THE PROJECT VICINITY.GIVEN THE KNOWN AND SUSPECTED ENVIRONMENTAL HISTORY OF THE PROJECT SITE ALL MATERIALS EXCAVATED FROM THE UNDERDRAIN TRENCH SHALL BE HANDLED IN ACCORDANCE WITH THE SMPS. ADDITIONALLY, THE TRENCH SHOULD BE LINED WITH A FABRIC FILTER AND ALL BACKFILL MATERIALS SHALL BE CLEAN OFF–SITE MATERIALS. NO ON–SITE MATERIALS SHALL BE USED IN THE BACKFILL OF THE UNDERDRAIN TRENCH.

THE SMPS NOTE THE ABSENCE OF GROUNDWATER IN THE UPPER 4–FEET OF THE OVERBURDEN SOILS IN THE AREA OF THE SITE AS WELL AS THE ABSENCE OF LEACHABLE CONTAMINANTS IN THE SURROUNDING SOIL/FILL (BASED ON TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) SAMPLES COLLECTED AT THE SITE AS REFERENCED IN THE SMPS. GROUNDWATER LEVELS WILL FLUCTUATE BASED ON RAINFALL AND CLIMATIC CONDITIONS.

CONSTRUCTION:

STAKEOUT AND CRITICAL GRADING DOCUMENTATION – THE CONSTRUCTION STAKEOUT AND THE CRITICAL GRADING DOCUMENTATION SHALL BE PERFORMED BY A LICENSED LAND SURVEYOR.

COORDINATION – THE CONTRACTOR SHALL COORDINATE ALL UTILITY WORK TO AVOID ANY POTENTIAL CONFLICTS

STAGING – THE CONTRACTOR SHALL PROVIDE A SECURE STAGING AREA FOR STORAGE OF EQUIPMENT, MATERIALS, EMPLOYEE PARKING AND OFFICE SPACE.

STREAM – THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER AS TO PREVENT OR REDUCE TO A MINIMUM ANY DAMAGE TO ANY STREAM FROM POLLUTION BY DEBRIS, SEDIMENT OR OTHER FOREIGN MATERIAL AND/OR FROM MANIPULATION OF EQUIPMENT AND/OR MATERIALS IN OR NEAR SUCH STREAMS.THE CONTRACTOR SHALL NOT RETURN DIRECTLY TO A STREAM ANY WATER WHICH AS BEEN USED FOR WASH PURPOSES OR OTHER SIMILAR OPERATIONS WHICH CAUSE THIS WATER TO BECOME POLLUTED WITH SAND, SILT, CEMENT, OIL, OR OTHER IMPURITIES. IF THE CONTRACTOR USES WATER FROM A STREAM, THE CONTRACTOR SHALL CONSTRUCT AN INTAKE OR TEMPORARY DAM REQUIRED TO PROTECT AND MAINTAIN WATER RIGHTS AND TO SUSTAIN FISH LIFE DOWNSTREAM.

CLOSE–OUT – LIMITED TO THE FOLLOWING AT PROJECT CLOSE–OUT TO THE SATISFACTION OF THE ENGINEER AND THE OWNER

* REMOVAL OF ALL CONSTRUCTION DEBRIS.
* CLEANING PAVEMENT AND WALKWAY SURFACES.
* RESTORATION OF ALL DISTURBED GRASS AND LANDSCAPE AREAS.
* PROVIDING BONDS, GUARANTEES, CERTIFICATIONS, AS REQUIRED BY CONTRACT DOCUMENTS.
* COMPLETION OF FINAL PUNCH LIST ITEMS.
* COMPLETE A MINIMUM OF ONE MOWING PRIOR TO FINAL INSPECTION. ADDITIONAL MOWING MAY BE ORDERED IF ROADSIDE VEGETATION BECOMES UNSIGHTLY AS DETERMINED BY THE EIC.

INVASIVE SPECIES NOTES:

THE CONTRACTOR SHALL TAKE ALL PRUDENT AND REASONABLE EFFORTS TO SELECT STAGING AREAS THAT ARE FREE FROM THE INFESTATION OF THE FOLLOWING INVASIVE PLANTS SPECIES: PHRAGMITES (PHRAGMITES AUSTRALIS), JAPANESE KNOTWEED (POLYGONUM CUSPIDATUM), PURPLE LOOSESTRIEF (LYNTHRUM SALICARIA), AND GIANT HOGWEED (HERACLEUM MANTEGAZZIANUM).

IF INVASIVE PLANT SPECIES ARE IN CLOSE PROXIMITY TO STAGING OPERATIONS,THE CONTRACTOR SHALL TAKE THE NECESSARY STEPS TO ASSURE THAT NO INVASIVE SPECIES PLANT PARTS COME IN CONTACT WITH CONSTRUCTION VEHICLES, EQUIPMENT, AND MATERIALS.

IF CONTACT IS UNAVOIDABLE, AS PER SECTION 107–01A INVASIVE SPECIES OF THE STANDARD SPECIFICATIONS. THE CONTRACTOR IS RESPONSIBLE FOR CLEANING THE INFECTED EQUIPMENT TO REMOVE ALL INVASIVE PLANT PARTS PRIOR TO THAT EQUIPMENT LEAVING THE STAGING AREA. THIS PROCEDURE IS REQUIRED IN ORDER MINIMIZE THE POSSIBILITY OF TRANSPORTING THE INVASIVE PLANT SPECIES OFF THE IMMEDIATE STAGING AREA AND ONTO STATE HIGHWAYS OR THE PROJECT SITE. REFER TO EI 09–002 AND USE ITEM 617.11000024, EQUIPMENT CLEANING FOR INVASIVE PLANT SPECIES, TO HELP ENSURE NO PLANT PARTS LEAVE THE JOB SITE.

TRS PACKAGING FACILITY
288,000 SF

BCP SITE NO.
C915198I

BCP SITE NO.
C915198J

BCP SITE NO.
C915198F

BCP SITE NO.
C915198H

BCP SITE NO.
C915198K

TEMPORARY STOCKPILE AREA FOR REUSABLE SOIL/FILL TO BE USED ON SITE

HIGHWAY BOUNDRY

UNILAND BUILDING
(UNDER CONSTRUCTION 06/2022)
151,200 SF

DONA STREET EXTENSION
(100.00' ROW)

HIGHWAY BOUNDRY

63.0

HIGHWAY BOUNDRY

NYS ROUTE 5 (HAMBURG TURNPIKE)

LEGEND

ROAD B WORK AREA

TEMPORARY REUSABLE SOIL/FILL STAGING AREA

60 0 60

SCALE IN FEET

WARNING
IT IS A VIOLATION OF SECTION 7209, SUBDIVISION 2, OF THE NEW YORK STATE EDUCATION LAW FOR ANY PERSON, OTHER THAN THOSE WHOSE SEAL APPEARS ON THIS DRAWING, TO ALTER IN ANY WAY AN ITEM ON THIS DRAWING. IF AN ITEM IS ALTERED, THE ALTERING ENGINEER SHALL AFFIX TO THE ITEM HIS SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

NO.	DATE	DESCRIPTION
		REVISIONS

FoitAlbert ASSOCIATES
Architecture.
Engineering.
Surveying.
Environmental.

PROJ. ENG.:
DESIGNED BY:
CHECKED BY:
DRAWN BY:

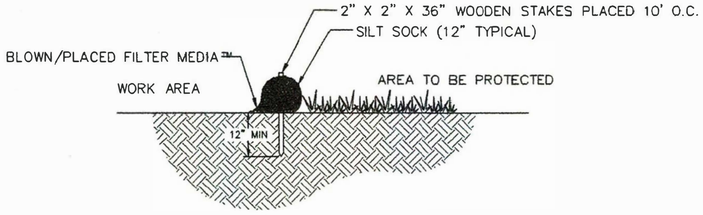
CLIENT:
ECIDA/ILDE
95 PERRY STREET, SUITE 403
BUFFALO, NEW YORK 14203

DATE: JUNE 2022
SCALE: AS SHOWN

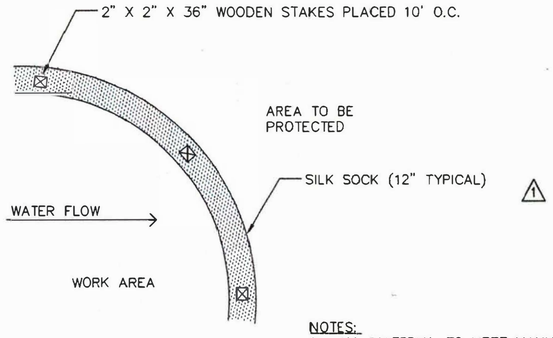
JOB TITLE AND LOCATION:
RENAISSANCE COMMERCE PARK
PUBLIC ROAD B

DRAWING TITLE:
SITE DEVELOPMENT PLAN

LIRO JOB NO.: 21-220-0135
SHEET OF
FIGURE NO. 1-2

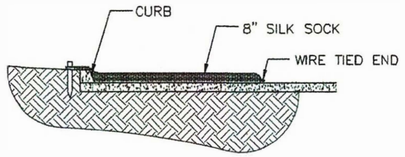


SECTION



PLAN

NOTES:
1. ALL MATERIAL TO MEET MANUFACTURER SPECIFICATIONS.
2. FILTER MEDIA FILL TO MEET APPLICATION REQUIREMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.



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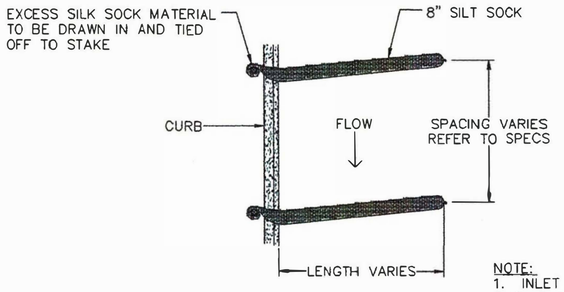
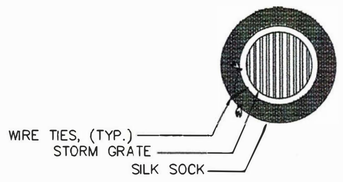


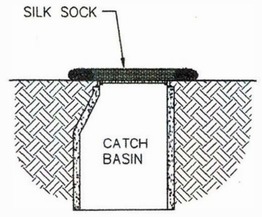
PLAN

NOTE:
1. INLET PROTECTION SHOULD NOT BE PLACED DIRECTLY UPSLOPE FROM DRAIN INLETS

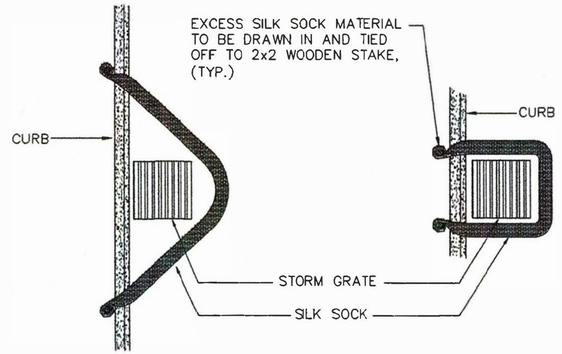
SILT SOCK INLET PROTECTION
CURB CONTAINMENT
NTS



DRAIN INLET PLAN

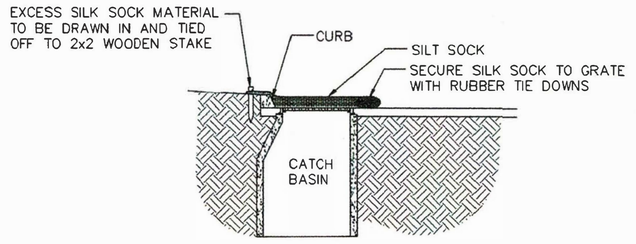


DRAIN INLET SECTION



CURBSIDE OPTION "A" PLAN

CURBSIDE OPTION "B" PLAN

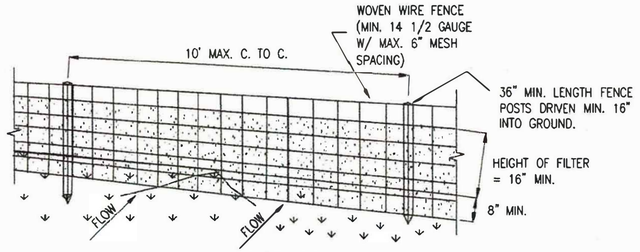


CURBSIDE SECTION

NOTES:
1. ALL MATERIAL TO MEET MANUFACTURER SPECIFICATIONS.
. FILTER MEDIA FILL TO MEET APPLICATION REQUIREMENTS.
. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.
. SILT SOCK SIZES SHALL BE APPROPRIATE FOR FIELD CONDITIONS OR A.O.B.E.

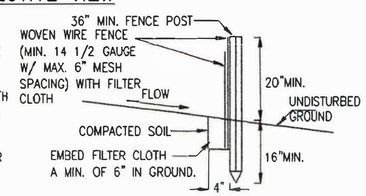
SILT SOCK INLET PROTECTION
NTS

SILT SOCK SEDIMENT CONTROL
NTS



PERSPECTIVE VIEW

CONSTRUCTION SPECIFICATIONS
1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 12 1/2 GAUGE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
4. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.



SECTION VIEW

SILT FENCE INSTALLATION DETAIL
N.T.S.

CONSTRUCTION SPECIFICATIONS:
1. STONE SIZE – USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH – NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS – NOT LESS THAN SIX (6) INCHES.
4. WIDTH – TEN (10) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
5. FILTER CLOTH – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE. FILTER WILL NOT BE REQUIRED ON A SINGLE FAMILY RESIDENCE LOT.
6. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARDS CONSTRUCTION ENTRANCE SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIOINAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED,WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WASHING – WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

FoitAlbert ASSOCIATES
Architecture, Engineering, Surveying
200 Main Street, Suite 200, Buffalo, New York 14202

ECIDA/ILDE
95 Perry Street, Suite 403
Buffalo, New York 14203

REN. AB ANN ECCO MMERCE P ARK PUBLIC ROAD B

EROSION & SEDIMENT CONTROL DETAILS

Sheet No.	
Date	Feb. 2022
S ale	As Noted
DWG.	ECD-1

APPENDIX A

Site Inspection Report Forms and Information

Stormwater Pollution Prevention Plan Site Inspection Report

Date: _____ **Weather:** _____ **Time:** _____

Day of the Week: _____ **Temperature:** _____ °F

Project: _____ **Owner:** _____

Contractor: _____ **Soil Conditions:** | Dry | Moist | Saturated |

Reason for inspection: _____ 7-calendar day inspection _____ 30-day inspection (temporary shut-down)

_____ Second inspection in 7-calendar-day period due to soil disturbance exceeding 5 acres

	Practice	Temp/ Perm?	Condition		Change since last inspection	Deficiencies/Corrective Actions/Remarks
1	Mulch	T	Good	Fair		
		P	Poor	N/A		
2	Seed and Mulch	T	Good	Fair		
		P	Poor	N/A		
3	Check Dams	T	Good	Fair		
		P	Poor	N/A		
4	Straw Bales	T	Good	Fair		
		P	Poor	N/A		
5	Silt Fence	T	Good	Fair		
		P	Poor	N/A		
6	Sediment Trap	T	Good	Fair		
		P	Poor	N/A		
7	Turbidity Curtains	T	Good	Fair		
		P	Poor	N/A		
8	DS Inlet Protection	T	Good	Fair		
		P	Poor	N/A		
9	Rolled Erosion Control Products	T	Good	Fair		
		P	Poor	N/A		
10	Construction Access/Exits	T	Good	Fair		
		P	Poor	N/A		
11	Pipe Inlet/Outlet Protection	T	Good	Fair		
		P	Poor	N/A		
12	Staging Area	T	Good	Fair		
		P	Poor	N/A		
13	Stock Pile Stabilization	T	Good	Fair		
		P	Poor	N/A		
14	Other	T	Good	Fair		
		P	Poor	N/A		

Additional Comments: _____

_____

_____

_____

Main Discharge Point Conditions: _____

_____

Inspected By: _____ **Date of Last Inspection:** _____

Signature: _____

FoitAlbert ASSOCIATES
Architecture.
Engineering.
Surveying.
Environmental.

SWPPP SITE INSPECTION REPORT

Name of Project: _____
Location of Project: _____
Permit ID Number: _____ **Inspector:** _____
Date of Inspection: _____ **Time of Inspection:** _____

(1) Describe weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection:

_____

_____

(2) Describe the condition of the runoff at all points of discharge from the construction site. Include identification of any discharges of sediment from the construction site. Include discharges from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow.

_____

_____

(3) Describe the condition of all natural surface water bodies located within, or immediately adjacent to, property boundaries of the the construction site which receive runoff from disturbed areas. This shall include identification of any discharges of sediment to the surface water body.

_____

(4) Identify all erosion and sediment control practices that need repair or maintenance.

_____

(5) Identify all erosion and sediment control practices that were not installed properly or are not functioning as designed and need to be reinstalled or replaced.

_____

(6) Describe and sketch areas that are disturbed at the time of the inspection and areas that have been stabilized (temporary and/or final) since the last inspection.

_____

(7) Current phase of construction of all post-construction storm water management practices and identification of all construction that is not in conformance with the SWPPP and technical standards.

_____

(8) Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices; and to correct deficiencies identified with the construction of the post-construction storm water management practice(s).

_____

(9) Attach digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. Attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. Take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. Attach paper color copies of the digital photographs to the inspection report that document the completion of the corrective action work within seven (7) calendar days of that inspection.

_____

Signed: _____ Date: _____

ATTACHMENT 1

Construction Stormwater Compliance Inspection Report

Project Name and Location:	Date:	Page 1 of 2
	Permit # (if any): **NYR**	
Municipality: County:	Entry Time:	Exit Time:
On-site Representative(s) and contact information:	Weather Conditions:	
Name and Address of SPDES Permittee/Title/Phone/Fax Numbers: Contacted: Yes ☐ No ☐		

INSPECTION CHECKLIST

SPDES Authority

	Yes	No	N/A		Law, rule or permit citation
1.	☐	☐	☐	Is a copy of the NOI posted at the construction site for public viewing?	
2.	☐	☐	☐	Is an up-to-date copy of the signed SWPPP retained at the construction site?	
3.	☐	☐	☐	Is a copy of the SPDES General Permit retained at the construction site?	

SWPPP Content

	Yes	No	N/A		Law, rule or permit citation
4.	☐	☐	☐	Does the SWPPP describe and identify the erosion & sediment control measures to be employed?	
5.	☐	☐	☐	Does the SWPPP provide a maintenance schedule for the erosion & sediment control measures?	
6.	☐	☐	☐	Does the SWPPP describe and identify the post-construction SW control measures to be employed?	
7.	☐	☐	☐	Does the SWPPP identify the contractor(s) and subcontractor(s) responsible for each measure?	
8.	☐	☐	☐	Does the SWPPP include all the necessary 'CONTRACTOR CERTIFICATION' statements?	
9.	☐	☐	☐	Is the SWPPP signed/certified by the permittee?	

Recordkeeping

	Yes	No	N/A		Law, rule or permit citation
10.	☐	☐	☐	Are inspections performed as required by the permit (every 7 days and after ½" rain event)?	
11.	☐	☐	☐	Are the site inspections performed by a qualified professional?	
12.	☐	☐	☐	Are all required reports properly signed/certified?	
13.	☐	☐	☐	Does the SWPPP include copies of the monthly/quarterly written summaries of compliance status?	

Visual Observations

	Yes	No	N/A		Law, rule or permit citation
14.	☐	☐	☐	Are all erosion and sediment control measures installed/constructed?	
15.	☐	☐	☐	Are all erosion and sediment control measures maintained properly?	
16.	☐	☐	☐	Have all disturbances of 5 acres or more been approved prior to the disturbance?	
17.	☐	☐	☐	Are stabilization measures initiated in inactive areas?	
18.	☐	☐	☐	Are permanent stormwater control measures implemented?	
19.	☐	☐	☐	Was there a discharge into the receiving water on the day of inspection?	
20.	☐	☐	☐	Are receiving waters free of there evidence of turbidity, sedimentation, or oil ? (If no , complete Page 2)	

Overall Inspection Rating: ❑ Satisfactory ❑ Marginal ❑ Unsatisfactory	
Name/Agency of Lead Inspector:	**Signature of Lead Inspector:**
Names/Agencies of Other Inspectors:	

Water Quality Observations

Describe the discharge(s) [source(s), impact on receiving water(s), etc.] _____

_____

_____

_____

_____

Describe the quality of the receiving water(s) both upstream and downstream of the discharge_____

_____

_____

_____

_____

Describe any other water quality standards or permit violations _____

_____

_____

Additional Comments:_____

_____

_____

_____

_____

_____

_____

_____

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_____

_____

_____

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_____

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_____

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_____

☐ Photographs attached

APPENDIX B

Water Quality Treatment Practice Calculations

Job: Road B | Project No.: | Sheet 1 of 2

Description: Water Quality Flow , Lackawanna, NY | Computed By: MFL | Date: 6/16/2022

Checked By: GS | Date: 6/21/2022

Description

The site is considered a redevelopment site for the NYSDEC Stormwater Management Design Manual. Consequently, only water quality volume or flow is required to be addressed. The due to the limited area available for storage, a proprietary system for treatment of peak water quality flow is being used for this site.

References

1. NYS Department of Environmental Conservation - Stormwater Management Design Manual
2. TR-55 - Urban Hydrology for Small Watersheds
3. Maryland Deparment of Environment - Stormwater Design Manual (referenced by NYSDEC Stormwater Design Manual)

Equations

$WQ_v = \frac{(P)(R_v)(A)}{12}$ — 1, Ch 4, Section 4.2

$CN = \frac{1000}{[10+5P+10Q_a-10(Q_a^2+1.25Q_aP)^{1/2}]}$ — 1, Appendix B2

$R_v=0.05+0.009(I)$, where I is the percent impervious of the site — 1, Ch 4, Section 4.2

$Q_a=(P)(R_v)$ — 3, Appendix D10

$I_a=(200/CN)-2$ — 3, Appendix D10

$Q_p=q_u*A*Q_a$ — 1, Appendix B2

Notation

WQ_v=water quality volume (acre-feet)

P=90% Rainfall Event Number — 1, Figure 4.1

A=site area in acres (Contributing area)

A_I=impervious area in acres

CN=Curve Number

Q_a=Runoff Volume, in inches

I=impervious area as a percentage of the site

I_a=initial abstraction

T_c=time of concentration — 2, Ch 3

q_u=unit peak discharge, in cfs/mi2/inch (TR-55 Exhibit 4-I to 4-III) — 2, Ch 4

Q_p=water quality peak discharge, in cfs

Assumptions

P= 1.10 in. — 1, Figure 4.1

Rainfall= Type II — 2, Figure B-2

A= 2.27 ac. 99,000 sf (Total Drainage Area)

A_I= 1.13 ac. 49,250 sf (Contributing area to the water quality flow.)

Redevolpment site, therefore use only 25% of WQv flow. — 1

Job:	Road B	Project No.:		Sheet	2 of 2
Description:	Water Quality Flow , Lackawanna, NY	Computed By:	MFL	Date:	6/16/2022
		Checked By:	GS	Date:	6/21/2022

			Ref, eq, pg #, or sec
Water Quality Volume			
P=	1.10	in.	
A=	2.27	ac.	
Ai=	1.13	ac.	
I=	49.7	%	
R_v=	0.49		
WQ_v=	0.10	ac.-ft	
	4,356.00	cf	
Curve Number, CN			
P=	1.10	in.	
R_v=	0.44		
Q_a=	0.484	in.	
CN=	92.50		
Unit Peak Discharge, q_u			
CN=	92.150		
I_a=	0.162	in.	
P=	1.10	in.	
I_a/P=	0.147		
T_c=	0.1	hr.	2, Chapter 3
q_u=	1000	csm/in	1, Exhibit 4-II
Peak Water Quality Discharge, Q_p			
q_u=	1000	csm/in	
Q_a=	0.484	in.	
A=	0.003551	mi^2	
Q_p=	1.72	cfs	
For structure design use:	Q_p x 25%		
	0.430	cfs	1

APPENDIX C

Notice of Intent (NOI) and Acknowledgment of NOI

NOI for coverage under Stormwater General Permit for Construction Activity

version 1.35

(Submission #: HPK-4YM4-K4MQ7, version 1)

Details

Submitted	7/13/2022 (0 days ago) by Michael F Lydle PE
Alternate Identifier	Renaissance Commerce Park Road B
Submission ID	HPK-4YM4-K4MQ7
Submission Reason	New
Status	Submitted
Active Steps	Under Review ,Under Review

Form Input

Owner/Operator Information

Owner/Operator Name (Company/Private Owner/Municipality/Agency/Institution, etc.)
Buffalo-Erie County Industrial Land Development Corporation

Owner/Operator Contact Person Last Name (NOT CONSULTANT)
Fallon

Owner/Operator Contact Person First Name
Sean

Owner/Operator Mailing Address
95 Perry Street, Suite 403

City
Buffalo,

State
New York

Zip
14203

Phone
716-865-6525

Email
sfallon@ecidany.com

Federal Tax ID
None

Project Location

Project/Site Name
Renaissance Commerce Park Road B

Street Address (Not P.O. Box)
Road B

Side of Street
North

City/Town/Village (THAT ISSUES BUILDING PERMIT)
Lackawanna

State
NY

Zip
14218

DEC Region
9

County
ERIE

Name of Nearest Cross Street
Dona Street Extension

Distance to Nearest Cross Street (Feet)
0

Project In Relation to Cross Street
North

Tax Map Numbers Section-Block-Parcel
None Provided

Tax Map Numbers
NONE PROVIDED

1. Coordinates

Provide the Geographic Coordinates for the project site. The two methods are:
- Navigate to the project location on the map (below) and click to place a marker and obtain the XY coordinates.
- The "Find Me" button will provide the lat/long for the person filling out this form. Then pan the map to the correct location and click the map to place a marker and obtain the XY coordinates.

Navigate to your location and click on the map to get the X,Y coordinates
42.81629723118169,-78.84974917768044

Project Details

2. What is the nature of this project?
Redevelopment with no increase in impervious area

3. Select the predominant land use for both pre and post development conditions.

Pre-Development Existing Landuse
Industrial

Post-Development Future Land Use
Industrial

3a. If Single Family Subdivision was selected in question 3, enter the number of subdivision lots.
0

---

4. In accordance with the larger common plan of development or sale, enter the total project site acreage, the acreage to be disturbed and the future impervious area (acreage)within the disturbed area.

*** ROUND TO THE NEAREST TENTH OF AN ACRE. ***

Total Site Area (acres)
2.2

Total Area to be Disturbed (acres)
2.2

Existing Impervious Area to be Disturbed (acres)
0

Future Impervious Area Within Disturbed Area (acres)
1.1

5. Do you plan to disturb more than 5 acres of soil at any one time?
No

---

6. Indicate the percentage (%) of each Hydrologic Soil Group(HSG) at the site.

A (%)
0

B (%)
0

C (%)
0

D (%)
100

7. Is this a phased project?
No

8. Enter the planned start and end dates of the disturbance activities.

Start Date
7/18/2022

End Date
10/15/2022

9. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.
Lake Erie

9a. Type of waterbody identified in question 9?
Lake Off Site

Other Waterbody Type Off Site Description
None Provided

9b. If "wetland" was selected in 9A, how was the wetland identified?
Regulatory Map

10. Has the surface waterbody(ies in question 9 been identified as a 303(d) segment in Appendix E of GP-0-20-001?
No

11. Is this project located in one of the Watersheds identified in Appendix C of GP-0-20-001?
No

12. Is the project located in one of the watershed areas associated with AA and AA-S classified waters?
No

If No, skip question 13.

13. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as D (provided the map unit name is inclusive of slopes greater than 25%), E or F on the USDA Soil Survey?
No

If Yes, what is the acreage to be disturbed?
NONE PROVIDED

14. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area?
No

15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)?
Yes

16. What is the name of the municipality/entity that owns the separate storm sewer system?
Erie County Department of of Public Works-Highway

17. Does any runoff from the site enter a sewer classified as a Combined Sewer?
No

18. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law?
No

19. Is this property owned by a state authority, state agency, federal government or local government?
Yes

20. Is this a remediation project being done under a Department approved work plan? (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.)
No

Required SWPPP Components

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)?
Yes

22. Does this construction activity require the development of a SWPPP that includes the post-construction stormwater management practice component (i.e. Runoff Reduction, Water Quality and Quantity Control practices/techniques)?
Yes

If you answered No in question 22, skip question 23 and the Post-construction Criteria and Post-construction SMP Identification sections.

23. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual?
Yes

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:
Professional Engineer (P.E.)

SWPPP Preparer
Foit-Albert Associates

Contact Name (Last, Space, First)
Lydle, Michael F.

Mailing Address
295 Main Street, Suite 200

City
Buffalo

State
New York

Zip
14203

Phone
716-856-3933

Email
mlydle@foit-albert.com

Download SWPPP Preparer Certification Form
Please take the following steps to prepare and upload your preparer certification form:

1) Click on the link below to download a blank certification form
2) The certified SWPPP preparer should sign this form
3) Scan the signed form
4) Upload the scanned document
Download SWPPP Preparer Certification Form

Please upload the SWPPP Preparer Certification
SWPPP Preparers Cerification Form.pdf - 07/13/2022 02:23 PM
Comment
NONE PROVIDED

Erosion & Sediment Control Criteria

25. Has a construction sequence schedule for the planned management practices been prepared?
Yes

26. Select all of the erosion and sediment control practices that will be employed on the project site:

Temporary Structural
Dust Control
Silt Fence
Stabilized Construction Entrance
Storm Drain Inlet Protection

Biotechnical
None

Vegetative Measures
Mulching
Seeding
Topsoiling

Permanent Structural
None

Other
None Provided

Post-Construction Criteria

*** IMPORTANT: Completion of Questions 27-39 is not required if response to Question 22 is No.**

27. Identify all site planning practices that were used to prepare the final site plan/layout for the project.
Reduction of Clearing and Grading

27a. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6("Soil Restoration") of the Design Manual (2010 version).
All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).

28. Provide the total Water Quality Volume (WQv) required for this project (based on final site plan/layout). (Acre-feet)
.10

29. Post-construction SMP Identification
Use the Post-construction SMP Identification section to identify the RR techniques (Area Reduction), RR techniques(Volume Reduction) and Standard SMPs with RRv Capacity that were used to reduce the Total WQv Required (#28).

Identify the SMPs to be used by providing the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

Note: Redevelopment projects shall use the Post-Construction SMP Identification section to identify the SMPs used to treat and/or reduce the WQv required. If runoff reduction techniques will not be used to reduce the required WQv, skip to question 33a after identifying the SMPs.

30. Indicate the Total RRv provided by the RR techniques (Area/Volume Reduction) and Standard SMPs with RRv capacity identified in question 29. (acre-feet)
.49

31. Is the Total RRv provided (#30) greater than or equal to the total WQv required (#28)?
Yes

If Yes, go to question 36. If No, go to question 32.

32. Provide the Minimum RRv required based on HSG. [Minimum RRv Required = (P) (0.95) (Ai) / 12, Ai=(s) (Aic)] (acre-feet)
NONE PROVIDED

32a. Is the Total RRv provided (#30) greater than or equal to the Minimum RRv Required (#32)?
NONE PROVIDED

If Yes, go to question 33.
Note: Use the space provided in question #39 to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). A detailed evaluation of the specific site limitations and justification for not reducing 100% of the WQv required (#28) must also be included in the SWPPP.

If No, sizing criteria has not been met; therefore, NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

33. SMPs
Use the Post-construction SMP Identification section to identify the Standard SMPs and, if applicable, the Alternative SMPs to be used to treat the remaining total WQv (=Total WQv Required in #28 - Total RRv Provided in #30).

Also, provide the total impervious area that contributes runoff to each practice selected.

NOTE: Use the Post-construction SMP Identification section to identify the SMPs used on Redevelopment projects.

33a. Indicate the Total WQv provided (i.e. WQv treated) by the SMPs identified in question #33 and Standard SMPs with RRv Capacity identified in question #29. (acre-feet)
.10

Note: For the standard SMPs with RRv capacity, the WQv provided by each practice = the WQv calculated using the contributing drainage area to the practice - provided by the practice. (See Table 3.5 in Design Manual)

34. Provide the sum of the Total RRv provided (#30) and the WQv provided (#33a).
.10

35. Is the sum of the RRv provided (#30) and the WQv provided (#33a) greater than or equal to the total WQv required (#28)?
Yes

If Yes, go to question 36.

If No, sizing criteria has not been met; therefore, NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

36. Provide the total Channel Protection Storage Volume (CPv required and provided or select waiver (#36a), if applicable.

CPv Required (acre-feet)
0

CPv Provided (acre-feet)
0

36a. The need to provide channel protection has been waived because:
NONE PROVIDED

37. Provide the Overbank Flood (Qp) and Extreme Flood (Qf) control criteria or select waiver (#37a), if applicable.

Overbank Flood Control Criteria (Qp)

Pre-Development (CFS)
0

Post-Development (CFS)
0

Total Extreme Flood Control Criteria (Qf)

Pre-Development (CFS)
0

Post-Development (CFS)
0

37a. The need to meet the Qp and Qf criteria has been waived because:
NONE PROVIDED

38. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed?
No

If Yes, Identify the entity responsible for the long term Operation and Maintenance
NONE PROVIDED

39. Use this space to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). (See question #32a) This space can also be used for other pertinent project information.
None

Post-Construction SMP Identification

Runoff Reduction (RR) Techniques, Standard Stormwater Management Practices (SMPs) and Alternative SMPs
Identify the Post-construction SMPs to be used by providing the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

RR Techniques (Area Reduction)

Round to the nearest tenth

Total Contributing Acres for Conservation of Natural Area (RR-1)
0

Total Contributing Impervious Acres for Conservation of Natural Area (RR-1)
0

Total Contributing Acres for Sheetflow to Riparian Buffers/Filter Strips (RR-2)
0

Total Contributing Impervious Acres for Sheetflow to Riparian Buffers/Filter Strips (RR-2)
0

Total Contributing Acres for Tree Planting/Tree Pit (RR-3)
0

Total Contributing Impervious Acres for Tree Planting/Tree Pit (RR-3)
0

Total Contributing Acres for Disconnection of Rooftop Runoff (RR-4)
0

RR Techniques (Volume Reduction)

Total Contributing Impervious Acres for Disconnection of Rooftop Runoff (RR-4)
0

Total Contributing Impervious Acres for Vegetated Swale (RR-5)
0

Total Contributing Impervious Acres for Rain Garden (RR-6)
0

Total Contributing Impervious Acres for Stormwater Planter (RR-7)
0

Total Contributing Impervious Acres for Rain Barrel/Cistern (RR-8)
0

Total Contributing Impervious Acres for Porous Pavement (RR-9)
0

Total Contributing Impervious Acres for Green Roof (RR-10)
0

Standard SMPs with RRv Capacity

Total Contributing Impervious Acres for Infiltration Trench (I-1)
0

Total Contributing Impervious Acres for Infiltration Basin (I-2)
0

Total Contributing Impervious Acres for Dry Well (I-3)
0

Total Contributing Impervious Acres for Underground Infiltration System (I-4)
0

Total Contributing Impervious Acres for Bioretention (F-5)
0

Total Contributing Impervious Acres for Dry Swale (O-1)
0

Standard SMPs

Total Contributing Impervious Acres for Micropool Extended Detention (P-1)
0

Total Contributing Impervious Acres for Wet Pond (P-2)
0

Total Contributing Impervious Acres for Wet Extended Detention (P-3)
0

Total Contributing Impervious Acres for Multiple Pond System (P-4)
0

Total Contributing Impervious Acres for Pocket Pond (P-5)
0

Total Contributing Impervious Acres for Surface Sand Filter (F-1)
0

Total Contributing Impervious Acres for Underground Sand Filter (F-2)
0

Total Contributing Impervious Acres for Perimeter Sand Filter (F-3)
0

Total Contributing Impervious Acres for Organic Filter (F-4)
0

Total Contributing Impervious Acres for Shallow Wetland (W-1)
0

Total Contributing Impervious Acres for Extended Detention Wetland (W-2)
0

Total Contributing Impervious Acres for Pond/Wetland System (W-3)
0

Total Contributing Impervious Acres for Pocket Wetland (W-4)
0

Total Contributing Impervious Acres for Wet Swale (O-2)
0

Alternative SMPs (DO NOT INCLUDE PRACTICES BEING USED FOR PRETREATMENT ONLY)

Total Contributing Impervious Area for Hydrodynamic
0

Total Contributing Impervious Area for Wet Vault
1.13

Total Contributing Impervious Area for Media Filter
0

"Other" Alternative SMP?
0

Total Contributing Impervious Area for "Other"
0

Provide the name and manufaturer of the alternative SMPs (i.e. proprietary practice(s)) being used for WQv treatment.

Note: Redevelopment projects which do not use RR techniques, shall use questions 28, 29, 33 and 33a to provide SMPs used, total WQv required and total WQv provided for the project.

Manufacturer of Alternative SMP
Environment 21

Name of Alternative SMP
StormPro

Other Permits

40. Identify other DEC permits, existing and new, that are required for this project/facility.
None

If SPDES Multi-Sector GP, then give permit ID
None

If Other, then identify
NONE PROVIDED

41. Does this project require a US Army Corps of Engineers Wetland Permit?
No

If "Yes," then indicate Size of Impact, in acres, to the nearest tenth
0

42. If this NOI is being submitted for the purpose of continuing or transferring coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned.
None

MS4 SWPPP Acceptance

43. Is this project subject to the requirements of a regulated, traditional land use control MS4?
No

If No, skip question 44

44. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI?
No

MS4 SWPPP Acceptance Form Download
Download form from the link below. Complete, sign, and upload.
MS4 SWPPP Acceptance Form

MS4 Acceptance Form Upload
SWPPP MS$ Acceptance Form.pdf - 07/13/2022 02:17 PM
Comment
None Provided

Owner/Operator Certification

Owner/Operator Certification Form Download
Download the certification form by clicking the link below. Complete, sign, scan, and upload the form.
Owner/Operator Certification Form (PDF, 45KB)

Upload Owner/Operator Certification Form
SWPP Owner_Operator Cert Form_Signed.pdf - 07/13/2022 08:47 PM
Comment
NONE PROVIDED

Attachments

Date	Attachment Name	Context	User

Date	Attachment Name	Context	User
7/13/2022 8:47 PM	SWPP Owner_Operator Cert Form_Signed.pdf	Attachment	Michael F Lydle PE
7/13/2022 2:23 PM	SWPPP Preparers Cerification Form.pdf	Attachment	Michael F Lydle PE
7/13/2022 2:17 PM	SWPPP MS$ Acceptance Form.pdf	Attachment	Michael F Lydle PE

Status History

	User	Processing Status
7/13/2022 1:28:03 PM	Michael F Lydle PE	Draft
7/13/2022 8:48:15 PM	Michael F Lydle PE	Submitting
7/13/2022 8:48:33 PM	Michael F Lydle PE	Submitted

Processing Steps

Step Name	Assigned To/Completed By	Date Completed
Form Submitted	Michael F Lydle PE	7/13/2022 8:48:33 PM
Under Review	DAVID GASPER	
Under Review	Daniel von Schilgen	

ACKNOWLEDGEMENT OF NOI

(PENDING)

APPENDIX D

Notice of Termination (NOT)

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505
(NOTE: Submit completed form to address above)

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity

Please indicate your permit identification number: NYR ___ ___ ___ ___ ___ ___

I. Owner or Operator Information

1. Owner/Operator Name:

2. Street Address:

3. City/State/Zip:

4. Contact Person: | 4a.Telephone:

4b. Contact Person E-Mail:

II. Project Site Information

5. Project/Site Name:

6. Street Address:

7. City/Zip:

8. County:

III. Reason for Termination

9a. □ All disturbed areas have achieved final stabilization in accordance with the general permit and SWPPP. ***Date final stabilization completed** (month/year): _____

9b. □ Permit coverage has been transferred to new owner/operator. Indicate new owner/operator's permit identification number: NYR ___ ___ ___ ___ ___ ___
(Note: Permit coverage can not be terminated by owner identified in I.1. above until new owner/operator obtains coverage under the general permit)

9c. □ Other (Explain on Page 2)

IV. Final Site Information:

10a. Did this construction activity require the development of a SWPPP that includes post-construction stormwater management practices? □ yes □ no (If no, go to question 10f.)

10b. Have all post-construction stormwater management practices included in the final SWPPP been constructed? □ yes □ no (If no, explain on Page 2)

10c. Identify the entity responsible for long-term operation and maintenance of practice(s)?

_____

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued

10d. Has the entity responsible for long-term operation and maintenance been given a copy of the operation and maintenance plan required by the general permit? □ yes □ no

10e. Indicate the method used to ensure long-term operation and maintenance of the post-construction stormwater management practice(s):

□ Post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain practice(s) have been deeded to the municipality.

□ Executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s).

□ For post-construction stormwater management practices that are privately owned, a mechanism is in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the owner or operator's deed of record.

□ For post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university or hospital), government agency or authority, or public utility; policy and procedures are in place that ensures operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

10f. Provide the total area of impervious surface (i.e. roof, pavement, concrete, gravel, etc.) constructed within the disturbance area? _____ (acres)

11. Is this project subject to the requirements of a regulated, traditional land use control MS4? □ yes □ no

(If Yes, complete section VI - "MS4 Acceptance" statement

V. Additional Information/Explanation:

(Use this section to answer questions 9c. and 10b., if applicable)

VI. MS4 Acceptance - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative (Note: Not required when 9b. is checked -transfer of coverage)

I have determined that it is acceptable for the owner or operator of the construction project identified in question 5 to submit the Notice of Termination at this time.

Printed Name:

Title/Position:

Signature:	Date:

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued

VII. Qualified Inspector Certification - Final Stabilization:

I hereby certify that all disturbed areas have achieved final stabilization as defined in the current version of the general permit, and that all temporary, structural erosion and sediment control measures have been removed. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

VIII. Qualified Inspector Certification - Post-construction Stormwater Management Practice(s):

I hereby certify that all post-construction stormwater management practices have been constructed in conformance with the SWPPP. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

IX. Owner or Operator Certification

I hereby certify that this document was prepared by me or under my direction or supervision. My determination, based upon my inquiry of the person(s) who managed the construction activity, or those persons directly responsible for gathering the information, is that the information provided in this document is true, accurate and complete. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

(NYS DEC Notice of Termination - January 2015)

APPENDIX E

Soil Descriptions

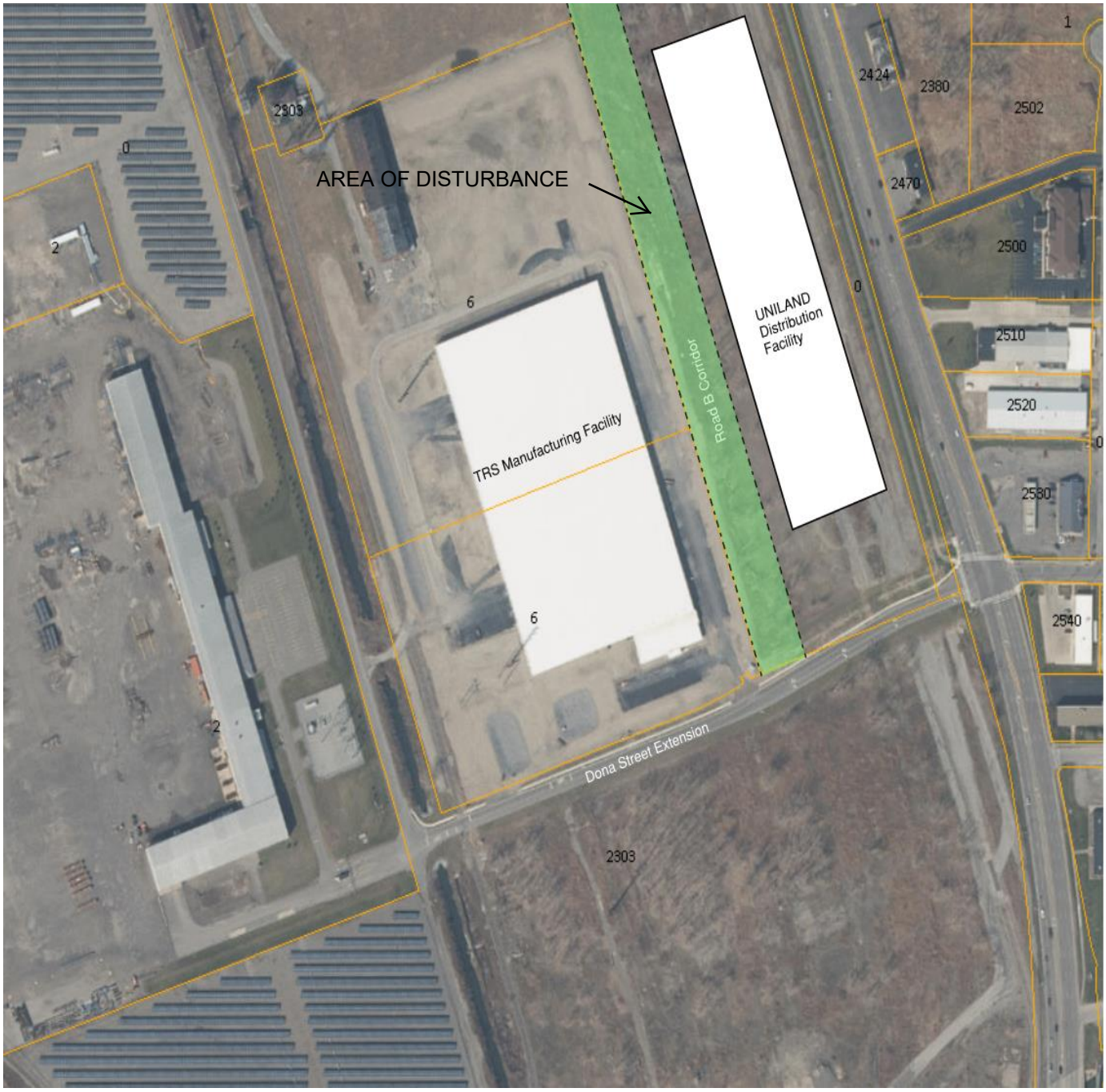
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Erie County, New York



July 13, 2022

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Road B Soil Classification
Legend
Feature 1
Feature 2
Feature 3
Hamburg Turnpike
Wilson St
Odell St
Wilmuth Ave
Odell St
Holbrook St
Ud
Ud
ROW
Road B (66'
UNILAND
Distribution
Facility
TRS
Manufacturing
Albright Ct
Us
Dona St
Dona St
N
900 ft
Soil Map

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Erie County, New York
Survey Area Data: Version 17, Feb 24, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 31, 2009—Oct 30, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ud	Urban land	11.9	100.0%
Totals for Area of Interest		**11.9**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Erie County, New York

Ud—Urban land

Map Unit Setting

National map unit symbol: 9rq4
Mean annual precipitation: 36 to 48 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Minor Components

Getzville

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Mardin

Percent of map unit: 5 percent
Hydric soil rating: No

Odessa

Percent of map unit: 5 percent
Hydric soil rating: No

Udorthents

Percent of map unit: 5 percent
Hydric soil rating: No

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

Appendix 6

Contractor's Health and Safety Plan

To be submitted to NYSDEC upon receipt

HEALTH AND SAFETY PLAN

ECIDA -ILDC

Renaissance Commerce Park—Public Road B
Dona Street Extension
City of Lackawanna
County of Erie
State of New York

Prepared by:

E&R General Construction Inc.
38 St. David's Dr.
West Seneca, NY 14224

Health and Safety Plan

This project Health and Safety Plan (HASP) was prepared for E&R General Construction Inc. employees performing a specific scope of work. It was prepared based on the best available information regarding the physical and chemical hazards known or suspected to be present on the project site. While it is not possible to discover, evaluate, and protect in advance against all possible hazards, which may be encountered during the completion of this project, adherence to the requirements of the HASP will significantly reduce the potential for occupational injury. By signing below, I acknowledge that I have reviewed and hereby approve the HASP for the **ECIDA_ILDC _Renaissance Commerce Park Public Road B -Dona Street Extension City of Lackawanna, Erie County, NY.** This HASP has been written for the exclusive use of E&R GENERAL CONSTRUCTION INC., its employees. The plan is written for specified site conditions, dates, and personnel, and must be amended if these conditions change.

EXECUTIVE SUMMARY

E&R General Construction Inc. has prepared this Health and Safety Plan (HASP) to address health and safety concerns related to Construction Work activities located at ECIDA_ILDC -Renaissance Commerce Park Public Road B-Dona Street Extension City of Lackawanna, Erie County, NY. site. The specific roles, responsibilities, authority, and requirements as they pertain to the safety of employees and the scope of services are discussed herein. The document is intended to identify known potential hazards and facilitate communication and control measures to prevent injury or harm. Additionally, provisions to control the potential for environmental impact from these activities are included where applicable.

SUMMARY TABLE	
E&R General Construction Inc. Scope of Work (SOW)	Project includes Site development and utility construction including provide temporary soil erosion and control measures, temporary fencing, earthwork including placement of suitable fill, construct multi use path, drainage structures, site lighting, landscaping and plantings, installation of topsoil and seed, final clean-up and closeout. Intrusive work at the site that may encounter contaminated (metals, PCB, VOC and SVOC) soils associated with historic site use as a Confined Disposal Facility (CDF) for the disposal of dredged sediments. Excavation and construction activities are expected to include trenching for utility improvements and installation, dredging operations, excavation and removal of topsoil from hardscape locations, and other construction work. Any excavation activities that may disturb soil and subsurface layers will be evaluated by the Site Environmental Representative for the potential to expose site contaminants to site workers, the public and the environment.

PRIMARY PHYSICAL HAZARDS					
x	Underground Utilities	x	Traffic Control	x	Electrical Hazards
x	Overhead Utilities	x	Slips, Trips/Walking Surface	x	Working on the water
x	Heavy Equipment Operations	x	Manual Lifting		

CHEMCIAL HAZARDS, MONITORING, ACTION LEVELS		
COPC	**MONITORING**	**ACTION LEVELS**
SVOC, PAHs, Heavy Metals (Not anticipated to be of concern via airborne exposure during current SOW)	PID with 10.6eV (general field screening during sample collection)	Upgrade to Level C at 1 ppm for Benzene

All staff is bound by the provisions of this HASP and are required to participate in a preliminary project safety meeting to familiarize them with the anticipated hazards and respective onsite controls. The discussion will cover the entire HASP subject matter, putting emphasis on critical elements of the plan, such as the emergency response procedures, personal protective equipment, site control strategies, and monitoring requirements.

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Attachment B Emergency Occupational Hospital Route/Detail Map

SDS provided in a separate 3 ring binder

1 INTRODUCTION

This Health and Safety Plan (HASP) provides a general description of the levels of personal protection and safe operating guidelines expected of each employee or subcontractor associated with the intrusive activities located at **ECIDA_ILDC_ Renaissance Commerce Park Public Road B-Dona Street Extension City of Lackawanna, Erie County, NY.** site.

HASP Supplements will be generated as necessary to address any additional activities or changes in site conditions, which may occur during field operations.

1.1 GENERAL

The provisions of this HASP are mandatory for all E&R General Construction Inc. personnel engaged in fieldwork associated with the services being conducted at the subject site. A copy of this HASP shall be always accessible on site and available for review. Record keeping will be maintained in accordance with this HASP and the applicable Standard Operating Procedures (SOPs). In the event of a conflict between this HASP, the SOPs and federal, provincial, state, and local regulations, workers shall follow the most stringent/protective requirements. Concurrence with the provisions of this HASP is mandatory for all personnel at the site covered by this HASP and must be signed on the acknowledgement page.

1.2 PROJECT POLICY STATEMENT

E&R General Construction Inc., Inc., is committed to protecting the safety and health of our employees and meeting our obligations with respect to the protection of others affected by our activities. We are also committed to protecting and preserving the natural environment in which we operate. The safety of persons and property is of vital importance to the success of this project and accident prevention measures shall be taken toward the avoidance of needless waste and loss. It shall be the policy of this project that all operations be conducted safely. Onsite supervisors are responsible for those they supervise by maintaining a safe and healthy working environment in their areas of responsibility, and by fairly and uniformly enforcing safety and health rules and requirements for all project personnel.

2 SITE INFORMATION AND SCOPE OF WORK

ECIDA-ILDC-Renaissance Commerce Park Public Road B-Dona Street extension, City of Lackawanna, Erie County, NY site. Deviations from the listed scope of work will require that a Safety Professional review any changes made to this HASP, to ensure adequate protection of personnel and other property.

The following is a summary of relevant data concerning the project site, and the work procedures to be performed.

2.1 SITE INFORMATION

This section provides a general description and historical information associated with the site.

2.1.1 General Description

In accordance with OSHA requirements contained in 29 CFR 1910.120, this Health and Safety Plan (HASP) describes the specific health and safety practices and procedures to be employed by E&R General Construction Inc., Inc. during the **ECIDA -ILDC-Renaissance Commerce Park Road B-Dona street extension- City of Lackawanna, Erie County, NY**. The site is located on Route 5 in the City of Lackawanna on a property that is part of the NYS Brownfield Cleanup Program.

This HASP presents procedures for E&R General Construction Inc. employees who will be involved with construction field activities to create a roadway.; it does not cover the activities of other contractors, subcontractors, or other individuals on the Site. These firms will be required to develop and enforce their own HASPs. This HASP presents information on known Site health and safety hazards using available historical information, and identifies the equipment, materials, and procedures that will be used to eliminate or control these hazards. Environmental monitoring will be performed during the course of field activities to provide real-time data for on-going assessment of potential hazards.

2.1.2 Background

Dona Street Extension Road B City of Lackawanna (the City), with portions of the property extending into the Town of Hamburg. Tecumseh's property is bordered by: NY State Route 5 (Hamburg Turnpike) on the east; Lake Erie to the west and northwest; and other industrial properties to the south and the northeast.

The Tecumseh property is located on a portion of the Site of the former Bethlehem Steel Corporation (BSC) Lackawanna Works in a primarily industrial area. The property was SITE-formerly used for the production of steel, coke, and related products by Bethlehem Steel Corporation (BSC). According to the Real Estate Records, in 1937, Bethlehem Steel Company owned the subject Site. In 1964, Bethlehem Steel Company merged into Bethlehem Steel Corporation. Steel production on the property was discontinued in 1983 and the coke ovens ceased activity in 2000. Tecumseh acquired the property, along with other BSC assets, out of bankruptcy in 2003.

A Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) of the entire former Bethlehem Steel Lackawanna Works was initiated by BSC under an Administrative Order issued by the United States Environmental Protection Agency (USEPA) in 1990. Tecumseh completed the RFI in January 2005. In September 2006, USEPA approved the RFI and terminated Bethlehem Steel's (and in turn Tecumseh's) obligation under the 1990 Administrative Order. Tecumseh has entered into an Order on Consent with the New York State Department of Environmental Conservation (NYSDEC) to undertake a corrective measures study (CMS) at certain solid waste management units (SWMUs) primarily on the western slag fill and coke manufacturing portion of the property. Outside of the CMS Area, Tecumseh designated five parcels for redevelopment under the New York State Brownfield Cleanup Program (BCP). These include: The Phase I, IA, II, and III Business Park, which are at various points of investigation and cleanup under the BCP and are slated for commercial/industrial redevelopment, and the Steel Winds Site, which was remediated under the BCP and redeveloped as a commercial wind farm. This Health and Safety Plan (HASP) applies to the Business Park Sites under the BCP.

2.2 SCOPE OF WORK

Renaissance Commerce Park Public Road B-Dona street Extension

2.2.1 Site Preparation

Site preparation includes utility call to Dig Safely NY, 811, for mark-out and clearance of public utilities. All private utility clearance shall be obtained by the authorizing authority for the subject site: property owner/manager and/or Engineer. If utility locations cannot be verified on-site by the authorizing authority, then a private utility location contractor may need to be utilized to confirm/deny the presence of private underground utilities on the site by others.

2.2.2 Project Organization and Responsibilities

E & R Const. Inc. personnel, or approved subconsultant staff will provide on-site inspection during construction of the project, including soil/fill removal and backfill activities, construction of stormwater and underdrain features, trail areas, and site grading activities. E & R or approved subconsultant staff will provide general environmental observations during intrusive activities performed at the Site. The NYSDEC Division of Environmental Remediation (Region 9), in consultation with the New York State Department of Health (NYSDOH), will monitor the remedial actions to verify that the work is performed in general accordance with the RA Work Plan and NYSDEC DER-10 guidance (Ref. i).

2.2.3 List of responsibilities of various personnel

- Project Manager – Responsible for the coordination and direction of the project plan.
- Site Supervisor – Responsible for managing the safety and health functions of E&R General Construction Inc. personnel on-site, day to day operations of the project, and documentation of work.
- Project Foreman – Responsible for the safe direction of equipment materials and personnel.
- Safety Director – Responsible for the proper implementation of the written Health and Safety Program.
- Site Workers – Responsible for complying with the Health and Safety Plan

2.2.4 Excavation

Various pieces of heavy equipment will be utilized for site work. As per the Site Management Plans; Soils and materials excavated within the boundaries of the Tecumseh Phase I and Phase II Business Parks indicate that contaminated soil/fill is assumed to occur within the upper 8 to 12 feet of the BSC site. The SMPs also define the screening, segregation, stockpiling, excavation, transportation, disposal and reuse requirements to manage soil/fill on the BSC property.

The SMPs state that exposure to remaining contamination in soil/fill will be prevented by a cover system. The cover system is to be comprised of a minimum of 12 inches of clean soil, stone or NYSDEC-approved materials, with a demarcation layer (i.e., geotextile fabric, orange poly netting, or similar non-degradable visual demarcation) in all areas that are not paved or covered by concrete or structures. Areas within the trail right-of-way to be impacted by project construction will include a cover system complying with the SMPs.

3 HAZARD ASSESSMENT (SAFETY)

3.1 PHYSICAL HAZARDS

The following physical hazards are anticipated to be present on the site. Additional hazards may be noted on the Task Hazard Analysis (THA) developed for the individual tasks.

3.1.1 Slips, Trips, Falls, and Protruding Objects

A variety of conditions may exist that may result in injury from slips, trips, falls, and protruding objects. Slips and trips may occur as a result of wet, slippery, or uneven walking surfaces. To prevent injuries from slips and trips, always keep work areas clean; keep walkways free of objects and debris; and report/clean up liquid spills. Protruding objects are any object that extends into the path of travel or working area that may cause injury when contacted by personnel. Always be aware of protruding objects and when feasible remove or label the protruding object with an appropriate warning.

3.1.2 Housekeeping

During site activities, work areas will be continuously policed for identification of excess trash and unnecessary debris.

3.1.3 Manual Lifting

Some materials associated with this project will require movement by hand. The human body is subject to severe damage in the forms of back injury, muscle strains, and hernia if caution is not observed in the handling process. Whenever possible, roll/lift with your arms as close to the body as possible.

3.1.4 Utilities

Various forms of underground/overhead utility lines or pipes may be encountered during site activities. Prior to the start of intrusive operations, utility clearance is mandated, as well as obtaining authorization from all concerned public utility department offices. If insufficient data is available to accurately determine the location of the utility lines, E&R General Construction Inc. will hand clear to a depth of at least 5 feet below ground surface in the proposed areas of subsurface investigation.

3.1.5 Electrical hazards

Electrical powered equipment may be used during a variety of site activities. Injuries associated with electrical powered equipment include electric shock, cuts/lacerations, eye damage (from flying debris), and burns. Always inspect tools before use. Plug tool to a ground fault interrupter circuit. Remove all damaged equipment from service.

3.1.6 Equipment Operation

Several basic precautions that should be taken include, but are not limited to, confirming locations of underground and overhead utilities, wearing of appropriate PPE and the avoidance of loose clothing or jewelry, staying clear of moving parts, knowing the locations of emergency shut-off switches.

3.1.7 Spill Prevention

Work activities may involve the use of hazardous materials (i.e. fuels,) or work involving drums or other containers. The following procedures will be used to prevent or contain spills:

At least one spill response kit, to include an appropriate empty container, materials to allow for booming or diking the area to minimize the size of the spill, and appropriate clean-up material (i.e. speedy dri) shall be available at each work site (more as needed).

3.1.8 Traffic Control Automotive

During certain work tasks, the establishment of traffic control to adequately protect workers and the public will be required. When using cones or other devices to modify traffic flow, ensure use of the proper taper length and device spacing to provide adequate warning distance to on-coming motor vehicles. In addition, proper PPE is to be worn during traffic operations, to include hardhat and high-visibility vests.

3.2 BIOLOGICAL HAZARDS

The likely hood of biological hazards being present is judged to be minimal since all work will be performed on a developed commercial facility; however, a general discussion of the most common biological hazards found on project sites.

3.2.1 Venomous Animals

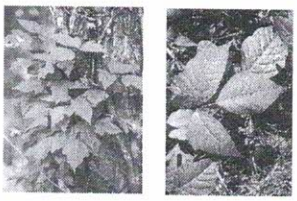
The likely hood of venomous animals being present is judged to be minimal since all work will be performed on a

developed commercial facility. Some animals have the ability to inject venom. These include: various types of spiders, and snakes.

If bitten by any of these animals special care should be taken to treat the wound as it may lead to complications due to the toxin. A bite from a venomous snake, which may inject varying degrees of toxic venom, is rarely fatal but should always be considered a medical emergency. Bites from a black widow should be treated as medical emergencies. All other bites should be reported, proper first aid implemented, and the wound progression tracked.

3.2.2 Poisonous Plants

The likelihood of poisonous plants being present is judged to be minimal since all work will be performed on a developed commercial facility. Sensitivity to toxins generated by plants, insects and animals varies according to dosage and the ability of the victim to process the toxin, therefore it is difficult to predict whether a reaction will occur, or how severe the reaction will be. Staff should be aware that there are a large number of organisms capable of causing serious irritations and allergic reactions. Some reactions will only erupt if a secondary exposure to sunlight occurs. Depending on the severity of the reaction, the result can result in severe scarring, blindness or even death. Examples of common poisonous or irritating plant species, common to the United States, are shown in Table 3-1

Poison Ivy • Several forms – vine, trailing shrub, or shrub • Three leaflets (can vary 3-9) • Leaves green in summer, red in fall • Yellow or green flowers • White berries	
Poison Oak • Grows in the East (NJ to Texas), Pacific Coast • 6-foot-tall shrubs or long vines • Oak-like leaves, clusters of three • Yellow berries	
Giant Hogweed • Grows from MI to VA, found in western NY • 8- to 14-feet tall • Small, white flowers form a large flat- topped umbel • Leaves up to 5-feet across, lobed, and deeply incised	

3.2.3 Insects

Insects for which precautionary measures should be taken include: mosquitoes (potential carriers of disease aside from dermatitis), black flies, wasps, bees, ticks, and European Fire Ant.

3.3 ULTRAVIOLET HAZARDS

Workers performing field work outdoors may be susceptible to sunburn if not properly protected with sunscreen or protective clothing and hats. Skin can burn in minutes when the UV Index is VERY HIGH. Protective measures are advisable.

3.4 CHEMICAL HAZARDS

If chemicals become a concern at the site, employees can be exposed by inhalation to the Constituents of potential concern (COPCs) during intrusive activities. Another route of potential exposure to the COPC is via direct dermal contact with soils and groundwater during sampling. Although highly unlikely, exposure to all of the COPCs can occur via ingestion (hand-to-mouth transfer). Monitoring procedures and action levels are shown in Table 5-3. The

decontamination procedures described in Section 6.4 address personal hygiene issues that will limit the potential for contaminant ingestion.

The chemical hazards associated with site activities can be controlled in several ways, including:

- Maintaining an upwind position;
- Use of personal protective equipment;
- Avoiding direct contact with contaminated media;
- Slow equipment down to prevent dusting;
- Use of water to prevent or minimize the generation of dust;
- Following decontamination procedures; and
- Washing hands prior to eating or using tobacco products.

Brief descriptions of the toxicology of the prevalent constituents of potential concern and related health and safety guidance and criteria are provided below.

- **Arsenic (CAS #7440-38-2)** is a naturally occurring element and is usually found combined with one or more elements, such as oxygen or sulfur. Inhalation is a more important exposure route than ingestion. First phase exposure symptoms include nausea, vomiting, diarrhea and pain in the stomach. Prolonged contact is corrosive to the skin and mucus membranes. Arsenic is considered a Group A human carcinogen by the USEPA. Exposure via inhalation is associated with an increased risk of lung cancer. Exposure via the oral route is associated with an increased risk of skin cancer.

- **Benzene (CAS #71-43-2)** poisoning occurs most commonly through inhalation of the vapor; however, benzene can also penetrate the skin and poison in that way. Locally, benzene has a comparatively strong irritating effect, producing erythema and burning and, in more severe cases, edema and blistering. Exposure to high concentrations of the vapor (i.e., 3,000 ppm or higher) may result in acute poisoning characterized by the narcotic action of benzene on the central nervous system. In acute poisoning, symptoms include confusion, dizziness, tightening of the leg muscles, and pressure over the forehead. Chronic exposure to benzene (i.e., long-term exposure to concentrations of 100 ppm or less) may lead to damage of the blood-forming system. Benzene is very flammable when exposed to heat or flame and can react vigorously with oxidizing materials.

- **Cadmium** is a natural element and is usually combined with one or more elements, such as oxygen, chloride, or sulfur. Breathing high levels of cadmium severely damages the lungs and can cause death. Ingestion of high levels of cadmium severely irritates the stomach, leading to vomiting and diarrhea. Long term exposure to lower levels of cadmium leads to a buildup of this substance in the kidneys and possible kidney disease. Other potential long-term effects are lung damage and fragile bones. Cadmium is suspected to be a human carcinogen.

- **Chromium (CAS #7440-47-3)** is used in the production of stainless steel, chrome plated metals, and batteries. Two forms of chromium, hexavalent (CR+6) and trivalent (CR+3) are toxic. Hexavalent chromium is an irritant and corrosive to the skin and mucus membranes. Chromium is a potential occupational carcinogen. Acute exposures to dust may cause coughing, wheezing, headaches, pain and fever.

- **Ethylbenzene (CAS #100-41-4)** is a component of automobile gasoline. Over-exposure may cause kidney, skin liver and/or respiratory disease. Signs of exposure may include dermatitis, irritation of the eyes and mucus membranes, headache. Narcosis and coma may result in more severe cases.

- **Lead (CAS #7439-92-1)** can affect almost every organ and system in our bodies. The most sensitive is the central nervous system, particularly in children. Lead also damages kidneys and the immune system. The effects are the same whether it is breathed or swallowed. Lead may decrease reaction time, cause weakness in fingers, wrists, or ankles, and possibly affect memory. Lead may cause anemia.

- **Mercury (CAS #7439-97-6)** is used in industrial applications for the production of caustic and chlorine, and in electrical control equipment and apparatus. Over-exposure to mercury may cause coughing, chest pains, bronchitis, pneumonia, indecision, headaches, fatigue, and salivation. Mercury is a skin and eye irritant.

- **Naphthalene (CAS #91-20-3)** is a white solid with a strong smell; is also called mothballs, moth flakes, white tar, and tar camphor. Naphthalene is a natural component of fossil fuels such as petroleum and coal; it is also formed when natural products such as wood or tobacco are burned. Acute exposure to naphthalene can cause systemic reactions, including nausea, headache, diaphoresis, hematuria, fever, anemia, liver damage, vomiting, convulsions, and coma. Acute exposure can also cause eye irritation, confusion, excitement, malaise, abdominal pain, irritation to the bladder, profuse sweating, jaundice, hematopoietic, hemoglobinuria, renal shutdown, and dermatitis. Exposure to a large amount of naphthalene can cause red blood cells to be damaged or destroyed, a condition called hemolytic anemia, which leads to fatigue, lack of appetite, restlessness, and a pale appearance. Poisoning may occur by ingestion of large doses, skin and/or eye contact, inhalation, or skin absorption.
- **Polycyclic Aromatic Hydrocarbons (PAHs)** are formed as a result of the pyrolysis and incomplete combustion of organic matter such as fossil fuel. PAH aerosols formed during the combustion process disperse throughout the atmosphere, resulting in the deposition of PAH condensate in soil, water and on vegetation. In addition, several products formed from petroleum processing operations (e.g., roofing materials and asphalt) also contain elevated levels of PAHs. Hence, these compounds are widely dispersed in the environment. PAHs are characterized by a molecular structure containing three or more fused, unsaturated carbon rings. Seven of the PAHs are classified by USEPA as probable human carcinogens (USEPA Class B2). These are: benzo (a) pyrene; benzo(a)anthracene; benzo(b)fluoranthene; benzo(k)fluoranthene; chrysene; dibenzo(a,h)anthracene; and indeno(1,2,3-cd)pyrene. The primary route of exposure to PAHs is through incidental ingestion and inhalation of contaminated particulates. PAHs are characterized by an organic odor, and exist as oily liquids in pure form. Acute exposure symptoms may include acne-type blemishes in areas of the skin exposed to sunlight.

3.5 WEATHER HAZARDS

Be attentive to daily weather forecasts for the project area each morning. Weather-related hazards will directly correlate to the type of weather involved. Hot, dry weather may cause greater dust emissions, particularly during intrusive activities. Rain may increase slip/trip hazards, particularly for ground workers.

Severe weather can occur with little warning. Employees will be vigilant for the potentials for storms, lightning, high winds, and flash flood events. Additionally, lightning strikes during electrical storms could also be a potential hazard. The following procedures will be implemented once thunder is heard or lightningspotted:

1) If thunder is heard, all site personnel are to be alert of any visible lightning flashes, observe the storm front and track the direction it is moving until it passes or until the prevailing direction is determined to be away from the site.

2) If lightning is observed, when the next lightning flash is observed, a "second" count shall be initiated from the time the lightning is observed until the thunder from the strike is heard.

The following action guidelines shall be implemented once the "second" count is 30 seconds:

a) "second" count > 30, observe the storm front. If the front is moving away, work will continue. If the front is moving towards the site, the Site Superintendent will initially place workers on alert for potential evacuation.

b) "second" count 30, cease work with work re-initiated once the front has passed by and thunder has not been heard for 30 minutes.

3) If lightning is observed and the storm front is moving away from or around the site and is > 20 miles away, work will be permitted to continue. The location of the storm can be confirmed via internet access to a local weather website that has a Doppler radar tracking system.

4 TRAINING

4.1 SITE WORKERS

All personnel performing investigation and remedial activities at the Site (such as, but not limited to, equipment

operators, general laborers, and supervisors) and who may be exposed to hazardous substances, health hazards, or safety hazards and their supervisors/managers responsible for the Site shall receive training in accordance with 29 CFR 1910.120(e) before they are permitted to engage in operations in the exclusion zone or contaminant reduction zone. This training includes an initial 40-hour Hazardous Waste Site Worker Protection Course, an 8-hour Annual Refresher Course subsequent to the initial 40-hour training, and 3 days of actual field experience under the direct supervision of a trained, experienced supervisor. Additional site-specific training shall also be provided by the Site Superintendent prior to the start of field activities.

4.1.1 INITIAL AND REFRESHER TRAINING

Initial and refresher training is conducted by a qualified instructor as specified under OSHA 29 CFR 1910.120(e)(5), and is specifically designed to meet the requirements of OSHA 29 CFR 1910.120(e) (3) and 1910.120(e) (8). The training covers, as a minimum, the following topics:

- OSHA HAZWOPER regulations
- Site safety and hazard recognition, including chemical and physical hazards
- Medical monitoring requirements
- Air monitoring, permissible exposure limits, and respiratory protection level classifications
- Appropriate use of personal protective equipment (PPE), including chemical compatibility and respiratory equipment selection and use
- Work practices to minimize risk
- Work zones and site control
- Safe use of engineering controls and equipment
- Decontamination procedures
- Emergency response and escape
- Confined space entry procedures
- Heat and cold stress monitoring
- Elements of a Health and Safety Plan
- Spill containment

Initial training also incorporates workshops for PPE and respiratory equipment use (Levels A, B and C), and respirator fit testing. Records and certification received from the course instructor documenting each employee's successful completion of the training identified above are maintained on file at TurnKey-Benchmark's Buffalo, NY office. Contractors and Subcontractors are required to provide similar documentation of training for all their personnel who will be involved in on-site work activities. Any employee who has not been certified as having received health and safety training in conformance with 29 CFR 1910.120(e) is prohibited from working in the exclusion and contamination reduction zones, or to engage in any on-site work activities that may involve exposure to hazardous substances or wastes.

4.1.2 SITE TRAINING

Site workers are given a copy of the HASP and provided a site-specific briefing prior to the commencement of work to ensure that employees are familiar with the HASP and the Information and requirements it contains. The site briefing shall be provided by the SSHO prior to initiating field activities and shall include:

- Names of personnel and alternates responsible for site safety and health
- Safety, health and other hazards present on the Site
- The Site lay-out including work zones and places of refuge.
- The emergency communications system and emergency evacuation procedures
- Use of PPE.
- Work practices by which the employee can minimize risks from hazards
- Safe use of engineering controls and equipment on the site
- Medical surveillance, including recognition of symptoms and signs of over-exposure as described in Chapter 5 of this HASP

- Decontamination procedures as detailed in Chapter 6 of this HASP
- The emergency response plan as detailed in Chapter 15 of this HASP
- Confined space entry procedures, if required, as detailed in Chapter 13 of this HASP

4.2 SUPERVISOR TRAINING

On-site safety and health personnel who are directly responsible for or who supervise the safety and health of workers engaged in hazardous waste operations (i.e., SSHO) shall receive, in addition to the appropriate level of worker training described in Section 4.1, above, 8 additional hours of specialized supervisory training, in compliance with 29 CFR 1910.120(e)(4).

4.3 TAILGATE SAFETY MEETINGS

Prior to the commencement of daily project activities, a tailgate meeting will be conducted to review the specific requirements of this HASP. Weekly Tool Box Talks will be conducted and recorded on a Tool Box Talk attendance sheet.

4.4 HAZARD COMMUNICATION

Hazardous materials that may be encountered as existing on-site environmental or physical/health contaminants during the work activities are addressed in this HASP and their properties, hazards and associated required controls will be communicated to all affected staff and subcontractors.

All personnel shall be briefed on the hazards of any chemical product they use, and shall be aware of and have access to all SDS.

All containers on site shall be properly labeled to indicate their contents. Labeling on any containers not intended for single-day, individual use shall contain additional information indicating potential health and safety hazards (flammability, reactivity, etc.).

Separate 3 ring binder provides copies of SDS for those items planned to be brought on site at the time this HASP is prepared. This information will be updated as required during site operations.

4.5 CONFINED SPACE ENTRY

Confined space entry will be accomplished according to E&R General Construction Inc.'s Confined Space Entry Program. Confined space entry is not anticipated for this site. If confined spaces are identified, the SSO/site supervisor will inform all employees of the location of confined spaces and prevent unauthorized entry.

4.6 HAZARDOUS, SOLID, OR MUNICIPAL WASTE

If hazardous, solid, and/or municipal wastes are generated during any phase of the project, the waste shall be accumulated, labeled, and disposed of in accordance with applicable Federal, State, Provincial, Territorial and/or local regulations.

4.7 GENERAL SAFETY RULES

All site personnel shall conduct themselves in a safe manner and maintain a working environment that is free of additional hazards.

4.7.1 Housekeeping

During site activities, work areas will be continuously policed for identification of excess trash and unnecessary debris. Excess debris and trash will be collected and stored in an appropriate container (e.g., plastic trash bags, garbage can, roll-off bin) prior to disposal. At no time will debris or trash be intermingled with waste PPE or contaminated materials.

4.7.2 Smoking, Eating, or Drinking

Smoking, eating and drinking will not be permitted inside any controlled work area at any time. Field workers will first wash hands and face immediately after leaving controlled work areas (and always prior to eating or drinking). Consumption of alcoholic beverages is prohibited at any E&R General Construction Inc. site. Smoking, eating or drinking must be in an approved area.

4.7.3 Personal Hygiene

The following personal hygiene requirements will be observed:

Water Supply: A water supply meeting the following requirements will be utilized:

Potable Water - An adequate supply of potable water will be available for E&R General Construction Inc. field personnel consumption in the form of water bottles. Potable water containers will be properly identified in order to distinguish them from non-potable water sources.

4.8 STOP WORK AUTHORITY

All employees have the right and duty to stop work when conditions are unsafe. Whenever it is determined that workplace conditions present an uncontrolled risk of injury or illness to employees, immediate resolution with the appropriate supervisor shall be sought.

4.9 CLIENT SPECIFIC SAFETY REQUIREMENTS

Prior to performing any work on-site, site specific training provided by the client must be completed. This training consists of general facility information and applicable safety requirements. Protective measures will mandate proper hygiene, washing the face and hands before eating, drinking, smoking or chewing anything. Site hazards will require the use of safety glasses, work boots substantially of leather, hard hat and clothing that covers most of the skin (level D). Training will include familiarization with OSHA's Hazardous Waste Operation and Emergency Response at least the 2 hour awareness level for those not contacting with proof of training and refresher training on an annual basis.

5 EXPOSURE MONITORING PROCEDURES

5.1 CONTAMINANT EXPOSURE HAZARDS

The following is a discussion of the hazards presented to worker personnel during this project from on-site chemical hazards known, suspected or anticipated to be present on site. E&R General Construction Inc. has based its evaluation on available data and maximum concentrations reported for the project site. The contaminants identified in Section 3 have been evaluated for exposure potential. If there is any information that is contrary to E&R General Construction Inc.'s conclusions in this HASP, it is anticipated that the client will provide this information prior to the initiation of site activities.

5.2 HEALTH AND SAFETY ACTION LEVELS

An action level is a point at which increased protection is required due to the concentration of contaminants in the work area or other environmental conditions. The concentration level (above background level) and the ability of the PPE to protect against that specific contaminant determine each action level. The action levels are based on concentrations in the breathing zone.

If ambient levels are measured which exceed the action levels in areas accessible to unprotected personnel, necessary control measures (barricades, warning signs, and mitigate actions to limit, etc.) must be implemented prior to commencing activities at the specific work area.

Personnel should also be able to upgrade or downgrade their level of protection.

5.3 MONITORING PROCRDURES

The following monitoring procedure is expected during all intrusive activities.

The tools outlined above, and their subsequent action levels defined below, have been based on the existing data for the site. Currently, exposure issues are not anticipated, however; a PID will be used for general screening purposes during soil investigation/sampling activities by the Site Environmental Representative. Based on the current SOW, no dust hazards are currently anticipated, and the procedures outlined below are for precautionary purpose only.

Table 5-3: Monitoring Procedures and Action Levels

(Respirable)	perimeter monitoring may be initiated by the SSO based on elevated air monitoring results.	□ 1 mg/m^3 (Sustained for more than 2 minutes)	Upgrade to Level C PPE. Contact the PM and SSO, implement mitigation measures, and continue Level C (minimum GME/P100 cartridges or equivalent chemical cartridge combined with P100) and continue monitoring.
		□ 3 mg/m^3 (Sustained for more than 2 minutes)	Temporarily cease work operations, contact the PM and SH&E Manager to discuss improving site mitigation measures.
PARAMETER	**LOCATION AND INTERVAL**	**RESPONSE LEVEL (ppm above background)**	**RESPONSE**
Hydrocarbons, VOCs, SVOCs (Total by PID)	Continuous in the worker's breathing zone or in the immediate work area for sustained reading of 2 minutes in duration.	< 1 ppm	Level D work and continue monitoring (not applicable for initial assessment of unknown drums or containers.
		□ 1 ppm	If no potential for change in conditions exist (drum/container activities increasing airborne levels), don Level C (OVAG cartridges or equivalent chemical cartridges combined with P100) and continue monitoring.
	Confined spaces will require initial and continuous monitoring.	Initial entry or opening/sampling unknown drums/containers	Stop Work. Not consistent with chemical contamination and concentrations identified in the specifications. Based upon the inconsistency, additional chemical specific monitoring and/or upgrade to Level B may be required. Consult with PM and H&S Professional.
		□ 5 ppm	
Dust, Mist, Aerosols	Continuous during intrusive activities involving impacted materials. In addition, site	< 1 mg/m^3 (Sustained for more than 2 minutes)	Continue Level D work and continue monitoring.

5.4 MEDICAL MONITORING

Medical monitoring examinations are provided to E&R General Construction Inc. employees as stipulated under 29 CFR Part 1910.120(f). These exams include initial employment, annual and employment termination physicals for all E&R General Construction Inc. employees involved in hazardous waste site field operations. Post-exposure examinations are also provided for employees who may have been injured; received a health impairment; developed signs or symptoms of over-exposure to hazardous substances; or were accidentally exposed to substances at concentrations above the permissible exposure limits without necessary personal protective equipment. Such exams are performed as soon as possible following development of symptoms or the known exposure event. Medical evaluations are performed by Immediate Care of WNY, an occupational health care provider under contract with E&R General Construction Inc. Immediate Care of WNY is located at 5014 Transit Road, Cheektowaga, New York 14043. The facility can be reached at (716) 684-2273 to schedule routine appointments or post-exposure examinations. Medical evaluations are conducted according to the E&R General Construction Inc. Medical Monitoring Program and include an evaluation of the workers' ability to use respiratory protective equipment. The purpose of the medical evaluation is to determine an employee's fitness for duty on hazardous waste sites; and to establish baseline medical data. The examinations include:

Occupational/medical history review.

- Physical exam, including vital sign measurement.
- Spirometry testing.
- Eyesight testing.
- Audio testing (minimum baseline and exit, annual for employees routinely exposed to greater than 85db).
- EKG (for employees >40 yrs age or as medical conditions dictate).
- Chest X-ray (baseline and exit, and every 5 years).
- Blood biochemistry (including blood count, white cell differential count, serum multiplastic screening).
- Medical certification of physical requirements (i.e., sight, musculoskeletal,

cardiovascular) for safe job performance and to wear respiratory protection equipment. In conformance with OSHA regulations, E&R General Construction Inc. will maintain and preserve medical records for a period of 30 years following termination of employment. Employees are provided a copy of the physician's post-exam report and have access to their medical records and analyses.

5.5 HEAT AND COLD STRESS

Heat and cold stress may vary based upon work activities, PPE/clothing selection, geographical locations, and weather conditions. To reduce the potential of developing heat/cold stress, be aware of the signs and symptoms of heat/cold stress and watch fellow employees for signs of heat/cold stress.

Heat stress can be a significant field site hazard, particularly for non-acclimated personnel operating in a hot, humid setting. Personal protective equipment may severely reduce the body's normal ability to maintain temperature equilibrium (via evaporation and convection) and require increased energy expenditure due to its bulk and weight Site personnel will be instructed in the identification of a heat stress victim, the first-aid treatment procedures for the victim and the prevention of heat stress casualties. Work-rest cycles will be determined and the appropriate measures taken to prevent heat stress.

To avoid heat stress, the following steps should be taken:

- Adjust work schedules.
- Modify work/rest schedules according to monitoring requirements.
- Mandate work slowdowns as needed.
- Perform work during cooler hours of the day if possible or at night if adequate lighting can be provided.
- Provide shelter (air-conditioned, if possible) or shaded areas to protect personnel during rest periods.
- Maintain worker's body fluids at normal levels. This is necessary to ensure that the cardiovascular system

functions adequately. Daily fluid intake must approximately equal the amount of water lost in sweat (i.e., eight fluid ounces must be ingested for approximately every 1 lb of weight lost). The normal thirst mechanism is not sensitive enough to ensure that enough water will be consumed to replace lost perspiration. When heavy sweating occurs, workers should be encouraged to drink more.

- Train workers to recognize the symptoms of heat related illness.

5.6 HEAT RELATED ILLNESS - SYMPTOMS:

- Heat rash may result from continuous exposure to heat or humid air.
- Heat cramps are caused by heavy sweating with inadequate electrolyte replacement. Signs and symptoms include: muscle spasms; pain in the hands, feet, and abdomen.
- Heat exhaustion occurs from increased stress on various body organs including inadequate blood circulation due to cardiovascular insufficiency or dehydration signs and symptoms include: pale, cool, moist skin; heavy sweating; dizziness; nausea; fainting.
- Heat stroke is the most serious form of heat stress. Temperature regulation fails and the body temperature rises to critical levels. Immediate action must be taken cool the body before serious injury and death occur. Competent medical help must be obtained. Signs and symptoms are: red, hot, usually dry skin; lack of or reduced perspiration; nausea; dizziness and confusion; strong, rapid pulse; coma.

The monitoring of personnel wearing protective clothing should commence when the ambient temperature is 70 degrees Fahrenheit or above. For monitoring the body's recuperative ability to excess heat, one or more of the following techniques should be used as a screening mechanism.

- Heart rate may be measured by the radial pulse for 30 seconds as early as possible in the resting period. The rate at the beginning of the rest period should not exceed 100 beats per minute. If the rate is higher, the next work period should be shortened by 10 minutes (or 33%), while the length of the rest periods stay the same. If the pulse rate is 100 beats per minute at the beginning of the nest rest period, the following work cycle should be further shortened by 33%.
- Body temperature may be measured orally with a clinical thermometer as early as possible in the resting period. Oral temperature at the beginning of the rest period should not exceed 99.6 degrees Fahrenheit. If it does, the next work period should be shortened by 10 minutes (or 33%), while the length of the rest period remains the same. However, if the oral temperature exceeds 99.6 degrees Fahrenheit at the beginning of the next period, the work cycle may be further shortened by 33%. Oral temperature should be measured at the end of the rest period to make sure that it has dropped below 99.6 degrees Fahrenheit. No E&R General Construction Inc. employee will be permitted to continue wearing semi-permeable or impermeable garments when his/her oral temperature exceeds 100.6 degrees Fahrenheit.

5.7 COLD STRESS MONITORING

Exposure to cold conditions may result in frostbite or hypothermia, each of which progresses in stages as shown below.

- **Frostbite** occurs when body tissue (usually on the extremities) begins to freeze. The three states of frostbite are:

1) **Frost nip** - This is the first stage of the freezing process. It is characterized by a whitened area of skin, along with a slight burning or painful sensation. Treatment consists of removing the victim from the cold conditions; removal of boots and gloves; soaking the injured part in warm water (102 to 108 degrees Fahrenheit); and drinking a warm beverage. Do not rub skin to generate friction/ heat.
2) **Superficial Frostbite** - This is the second stage of the freezing process. It is characterized by a whitish gray area of tissue, which will be firm to the touch but will yield little pain. The treatment is identical or Frost nip.
3) **Deep Frostbite** - In this final stage of the freezing process the affected issue will be cold, numb and hard and will yield little to no pain. Treatment is identical to that for Frost nip.

- **Hypothermia** is a serious cold stress condition occurring when the body loses heat at a rate faster than it is produced. If untreated, hypothermia may be fatal. The stages of hypothermia may not be clearly defined or visible at first, but generally include:

    1) Shivering
    2) Apathy (i.e., a change to an indifferent or uncaring mood)
    3) Unconsciousness
    4) Bodily freezing

Employees exhibiting signs of hypothermia should be treated by medical professionals. Steps that can be taken while awaiting help include:

1) Remove the victim from the cold environment and remove wet or frozen clothing. (Do this carefully as frostbite may have started.)
2) Perform active re-warming with hot liquids for drinking (Note: do not give the victim any liquid containing alcohol or caffeine) and a warm water bath (102 to 108 degrees Fahrenheit).
3) Perform passive re-warming with a blanket or jacket wrapped around the victim.

In any potential cold stress situation, it is the responsibility of the Site Health and Safety Officer to encourage the following:

- Education of workers to recognize the symptoms of frostbite and hypothermia.
- Workers should dress warmly, with more layers of thin clothing as opposed to one thick layer.
- Personnel should remain active and keep moving.
- Personnel should be allowed to take shelter in a heated area, as necessary.
- Personnel should drink warm liquids (no caffeine or alcohol if hypothermia has set in).
- For monitoring the body's recuperation from excess cold, oral temperature recordings should occur:
    - At the Site Safety Technicians discretion when suspicion is based on changes in a worker's performance or mental status.
    - At a workers request.
    - As a screening measure, two times per shift, under unusually hazardous conditions (e.g., wind chill less than 20 degrees Fahrenheit or wind chill less than 30 degrees Fahrenheit with precipitation).
    - As a screening measure whenever anyone worker on site develops hypothermia.

Any person developing moderate hypothermia (a core body temperature of 92 degrees Fahrenheit) will not be allowed to return to work for 48 hours without the recommendation of a qualified medical doctor.

6 PERSONAL PROTECTIVE EQUIPMENT

6.1 EQUIPMENT SELECTION

The purpose of personal protective equipment (PPE) is to provide a barrier, which will shield or isolate individuals from the chemical and/or physical hazards that may be encountered during work activities.

By signing this HASP the employee agrees having been trained in the use, limitations, care and maintenance of the protective equipment to be used by the employee at this project. If training has not been provided, request same of the PM/SSO for the proper training before signing.

Personal protective equipment (PPE) will be donned when work activities may result in exposure to physical or chemical hazards beyond acceptable limits, and when such exposure can be mitigated through appropriate PPE. The selection of PPE will be based on an evaluation of the performance characteristics of the PPE relative to the requirements and limitations of the Site, the task-specific conditions and duration, and the hazards and potential hazards identified at the Site. **This project will be conducted under Modified Level D PPE, as per table below.** Equipment designed to protect the body against contact with known or suspect chemical hazards are grouped into four categories according to the degree of protection afforded.

Level A/B Protection Ensemble

Level A/B ensembles include similar respiratory protection, however Level A provides a higher degree of dermal protection than Level B.

- Pressure-demand, full-face piece self-contained breathing apparatus or pressure-demand supplied-air respirator with escape self-contained breathing apparatus (SCBA)
- Chemical-resistant clothing. For Level A, clothing consists of totally-encapsulating chemical resistant suit. Level B incorporates hooded one-or two-piece chemical splash suit
- Inner and outer chemical resistant gloves
- Chemical-resistant safety boots/shoes
- Hardhat

Level C Protection Ensemble

Level C protection is distinguished from Level B by the equipment used to protect the respiratory system, assuming the same type of chemical-resistant clothing is used. The main selection criterion for Level C is that conditions permit wearing an air-purifying device equipped with filter cartridges able to remove the substances encountered. Respiratory protection will be used only with proper fitting, training, and the approval of a qualified individual. The air-purifying respirator can be used only if atmospheric oxygen content is at least 19.5% in volume; substances are identified and concentrations measured; substances have adequate warning properties; the individual passes a qualitative fit-test for the mask.

- Full-face piece, air-purifying respirator equipped with MSHA and NIOSH approved organic vapor/acid gas/dust/mist combination cartridges or as designated by the SSHO
- Chemical-resistant clothing (hooded, one or two-piece chemical splash suit or disposable chemical-resistant one-piece suit)
- Inner and outer chemical-resistant gloves
- Chemical-resistant safety boots/shoes
- Hardhat

An air-monitoring program is part of all response operations when atmospheric contamination is known or suspected. It is particularly important that the air be monitored thoroughly when personnel are wearing air-purifying respirators. Continual surveillance using direct-reading instruments is needed to detect any changes in air quality necessitating a higher level of respiratory protection.

Level D Protection Ensemble

As indicated above, Level D protection is primarily a work uniform. It can be worn in areas where only boots can be contaminated, where there are no respirable toxic substances and where the atmospheric contains at least 19.5% oxygen.

Recommended PPE for Modified Level D includes:

Table 6-1: Personal Protective Equipment

TYPE	MATERIAL	ADDITIONAL INFORMATION
Minimum PPE		
Safety Vest	ANSI Type II high-visibility	Must have reflective tape/be visible from all sides
Boots	Leather	ANSI approved safety toe
Safety Glasses		ANSI Approved; 98% UV protection
Hard Hat		ANSI Approved; recommended wide-brim
Work Uniform		No shorts/cutoff jeans or sleeveless shirts
Additional PPE:		
Hearing Protection	Ear plugs and/ or muffs	In hazardous noise areas
Leather Gloves		If working with sharp objects or powered equipment.
Protective Chemical Gloves	Nitrile	During handling of all potential COPC impacted media.
Protective Chemical Coveralls	Tyvek	For use where contact potential with COPC impacted media exists.
Protective Chemical Boots	Rubber Overbooties or dedicated rubber boots	For use where contact potential with COPC impacted media exists.
Level C Respiratory Protection	MSA (Full Face or equivalent) equipped with GME/P100	Upgrade based on air monitoring requirements established in Section 5.0.
Sunscreen	SPF 30 or higher	
Cold Weather Gear	Hard hat liner, hand warmers, insulated gloves	

6.2 PPE DOFFING AND DONNING (UTILIZATION) INFORMATION

The following information is to provide field personnel with helpful hints that, when applied, make donning and doffing of PPE a more safe and manageable task:

- Never cut disposable booties from your feet with basic utility knives. This has resulted in workers cutting through the booty and the underlying sturdy leather work boot, resulting in significant cuts to the legs/ankles. Recommend using a pair of scissors or a package/letter opener (cut above and parallel with the work boot) to start a cut in the edge of the booty, then proceed by manually tearing the material down to the sole of the booty for easy removal.
- When applying duct tape to PPE interfaces (wrist, lower leg, around respirator, etc.) and zippers, leave approximately one inch at the end of the tape to fold over onto itself. This will make it much easier to remove the tape by providing a small handle to grab while still wearing gloves. Without this fold, trying to pull up the tape end with multiple gloves on may be difficult and result in premature tearing of PPE.

- Have a "buddy" check your ensemble to ensure proper donning before entering controlled work areas. Without mirrors, the most obvious discrepancies can go unnoticed and may result in a potential exposure situation.
- Never perform personal decontamination with a pressure washer.

6.3 WORK ZONES AND SITE CONTROL

Work zones around the areas designated for construction activities will be established on a daily basis and communicated to all employees and other site users by the SSHO. It shall be each Contractor's SSHO's responsibility to ensure that all site workers are aware of the work zone boundaries and to enforce proper procedures in each area. The zones will include:

- Exclusion Zone ("Hot Zone"): The area where contaminated materials may be exposed, excavated, or handled and all areas where contaminated equipment or personnel may travel. The zone will be delineated by flagging tape. All personnel entering the Exclusion Zone must wear the prescribed level of personal protective equipment identified in Section 7.
- Contamination Reduction Zone: The zone where decontamination of personnel and equipment takes place. Any potentially contaminated clothing, equipment, and samples must remain in the Contamination Reduction Zone until decontaminated.
- Support Zone: The part of the site that is considered non-contaminated or "clean." Support equipment will be located in this zone, and personnel may wear normal work clothes within this zone.

In the absence of other task-specific work zone boundaries established by the SSHO, the following boundaries will apply to all investigation and construction activities involving disruption or handling of site soils or groundwater:

- Exclusion Zone: 50 foot radius from the outer limit of the sampling/construction activity.
- Contaminant Reduction Zone: 100 foot radius from the outer limit of the sampling/construction activity.
- Support Zone: Areas outside the Contaminant Reduction Zone.

Access of non-essential personnel to the Exclusion and Contamination Reduction Zones will be strictly controlled by the SSHO. Only personnel who are essential to the completion of the task will be allowed access to these areas if they are wearing the prescribed level of protection. Entrance of all personnel must be approved by the SSHO. The SSHO will maintain a Health and Safety Logbook containing the names of E&R General Construction Inc. workers and their level of protection. The zone boundaries may be changed by the SSHO as environmental conditions warrant, and to respond to the necessary changes in work locations on-site.

7 DECONTAMINATION

7.1 General Requirements

All possible and necessary steps shall be taken to reduce or minimize contact with chemicals and contaminated/impacted materials while performing field activities (e.g., avoid sitting or leaning on, walking through, dragging equipment through or over, tracking, or splashing potential or known contaminated/impacted materials, etc).

Decontamination procedures may vary based on site conditions and nature of the contaminant(s). If chemicals or decontamination solutions are used, care should be taken to minimize reactions between the solutions and contaminated materials. In addition, personnel must assess the potential exposures created by the

decontamination chemical(s) or solutions. The applicable Safety Data Sheet (SDS) must be reviewed, implemented, by personnel contacting the chemicals/solutions.

All contaminated PPE and decontamination materials shall be contained, stored and disposed of in accordance with site-specific requirements determined by site management.

7.1.1 Decontamination Equipment

The equipment required to perform decontamination may vary based on site-specific conditions and the nature of the contaminant(s). The following equipment is commonly used for decontamination purposes:

- Soft-bristle scrub brushes or long-handled brushes to remove contaminants.
- Hoses, buckets of water or garden sprayers for rinsing;
- Large plastic garbage cans or similar containers lined with plastic bags for the storage of contaminated clothing and equipment;
- Metal or plastic cans or drums for the temporary storage of contaminated liquids; and
- Paper or cloth towels for drying protective clothing and equipment.

7.1.2 Personal/Equipment Decontamination

All equipment leaving the EZ shall be considered contaminated and must be properly decontaminated to minimize the potential for exposure and off-site migration of impacted materials. Such equipment may include, but is not limited to: sampling tools, heavy equipment, vehicles, PPE, support devices (e.g., hoses, cylinders, etc.), and various handheld tools.

All employees performing equipment decontamination shall wear the appropriate PPE to protect against exposure to contaminated materials. The level of PPE may be equivalent to the level of PPE required in the EZ. Other PPE may include splash protection, such as face-shields and splash suits, and knee protectors. Following equipment decontamination, employees may be required to follow the proper personal decontamination procedures above.

Personnel decontamination should consist of the following glove removal procedure:

1. <u>For Overbootie Removal</u>

- Grasp top of overbootie and roll downward (inside out)
- Using gloved hands, place booties in receptacle

2. <u>For Suit Removal</u>

- Unzip suit and remove arms, turning inside-out
- Slide suit down, over waist
- Slide suit downward over legs, and step out
- Using gloved hands, grasp inside of suit, and place in receptacle.

3. <u>For Glove removal:</u>

- Grasp the cuff of the dominant hand and pull glove over the bulk of the hand, leaving the fingers inside the glove.
- Use the dominant hand to grasp the cuff of the non-dominant hand and pull the glove completely off (inside-out) and place inside of the dominant hand glove.

- Once removed, employee should only touch the inside material of the dominant hand glove.
- Thoroughly wash hands.

4. For APR Removal

- Remove cartridges and place in receptacle
- Loosen straps, grasp back strap and face piece, and doff mask
- Decon mask and hang to dry

All employees who are expected to don respiratory protection must have successfully passed a qualitative or quantitative fit-test within the past year for the brand, model and size respirator they plan to don. If worn, respirators will be cleaned after each use with respirator wipe pads and will be stored in plastic bags after cleaning. Respirators will be thoroughly cleaned using disinfectant material within one week following any respirator use. Refer to the cleaning instructions provided with the respirator or specified in the OSHA regulations at 29 CFR 1910.134.

For smaller equipment, use the following steps for decontamination:

1. Remove majority of visible gross contamination in EZ.
2. Wash equipment in decontamination solution with a scrub brush and/or power wash heavy equipment.
3. Rinse equipment.
4. Visually inspect for remaining contamination.
5. Follow appropriate personal decontamination steps outlined above.

7.1.3 Decontamination for Medical Emergencies

In the event of a minor, non-life threatening injury, personnel should follow the decontamination procedures as defined, and then administer first-aid. In the event of a major injury or other serious medical concern (e.g., heat stroke), immediate first-aid is to be administered and the victim transported to the hospital in lieu of further decontamination efforts unless exposure to a site contaminant would be considered "Immediately Dangerous to Life or Health."

8 EMERGENCY RESPONSE PLANNING

8.1 EMERGENCY ACTION PLAN

Although the potential for an emergency to occur is remote, an emergency action plan has been prepared for this project should such critical situations arise. The only significant type of onsite emergency that may occur is physical injury or illness to a member of the E&R General Construction Inc. team. The Emergency Action Plan (EAP) will be reviewed by all personnel prior to the start of field activities.

Three major categories of emergencies could occur during site operations:

Illnesses and physical injuries (including injury-causing chemical exposure)

Catastrophic events (fire, explosion, earthquake, or chemical)

Workplace Violence, Bomb Threat

Safety equipment problems

8.2 EMERGENCY RESPONSE EQUIPMENT

Emergency procedures may require specialized equipment to facilitate worker rescue, contamination control and reduction, or post-emergency clean up. Emergency response equipment available on the Site is listed below. The equipment inventory and storage locations are based on the potential emergencies described above. This equipment inventory is designed to meet on-site emergency response needs and any specialized equipment needs that off-site responders might require because of the hazards at this Site but not ordinarily stocked. Any additional personal protective equipment (PPE) required and stocked for emergency response is also listed in below. During an emergency, the Emergency Response Coordinator (ERC) is responsible for specifying the level of PPE required for emergency response. At a minimum, PPE used by emergency responders will comply with Section 7.0, Personal Protective Equipment, of this HASP. Emergency response equipment is inspected at regular intervals and maintained in good working order. The equipment inventory is replenished as necessary to maintain response capabilities.

Emergency Equipment	Quantity	Location
Spill Response Kit	2	Site Vehicle
First Aid Kit	3	Site Vehicle
Chemical Fire Extinguisher	2 (minimum)	All heavy equipment and Site Vehicle

Emergency PPE	Quantity	Location
Full-face respirator	1 for each worker	Site Vehicle
Chemical-Resistant suits	4 (minimum)	Site Vehicle

8.3 EMERGENCY PLANNING MAPS

An area-specific map of the Tecumseh Redevelopment Site will be developed on a daily basis during performance of field activities. The map will be marked to identify critical on-site emergency planning information, including: emergency evacuation routes, a place of refuge, an assembly point, and the locations of key site emergency equipment. Site zone boundaries will be shown to alert responders to known areas of contamination. There are no major topographical features; however, the direction of prevailing winds/weather conditions that could affect emergency response planning are also marked on the map. The map will be posted at site-designated place of refuge and inside the E&R General Construction Inc. personnel field vehicle.

8.4 SITE SPECIFIC MEDICAL EMERGENCY

- Fire Department / or Police will be the primary response unit.
- Injured workers will be transported to nearest hospital equipped and able to handle the emergency. **The closest hospital: Mercy Hospital of Buffalo, 565 Abbott Rd, Buffalo, NY 14220**
- Whenever an injury is life threatening the Paramedic will decide what facility the injured will be taken to along with the hospitals and the reviewing physician working with the paramedic.
- Multiple injuries may well require multiple transport vehicles. These decisions will be made by the Fire Chief or Incident Commander when they arrive on site and review the situation.

8.5 EMERGENCY ALERTING & EVACUATION

Internal emergency communication systems are used to alert workers to danger, convey safety information, and maintain site control. Any effective system can be employed. Two-way radio headsets or field telephones are often used when work teams are far from the command post. Hand signals and air-horn blasts are also commonly used. Every system must have a backup. It shall be the responsibility of each contractor's SSHO to ensure an adequate method of internal communication is understood by all personnel entering the site. Unless all personnel are otherwise informed, the following signals shall be used.

1) Emergency signals by portable air horn, siren, or whistle: two short blasts, personal injury; continuous blast, emergency requiring site evacuation.
2) Visual signals: hand gripping throat, out of air/cannot breathe; hands on top of head, need assistance; thumbs up, affirmative/everything is OK; thumbs down, no/negative; grip partner's wrist or waist, leave area immediately.

If evacuation notice is given, site workers leave the worksite with their respective buddies, if possible, by way of the nearest exit. Emergency decontamination procedures detailed in Section 12.0 of the HASP are followed to the extent practical without compromising the safety and health of site personnel. The evacuation routes and assembly area will be determined by conditions at the time of the evacuation based on wind direction, the location of the hazard source, and other factors as determined by rehearsals and inputs from emergency response organizations. Wind direction indicators are located so that workers can determine a safe up wind or cross wind evacuation route and assembly area if not informed by the emergency response coordinator at the time the evacuation alarm sounds. Since work conditions and work zones within the site may be changing on daily basis, it shall be the responsibility of the construction SSHO to review evacuation routes and procedures as necessary and to inform all E&R General Construction Inc. workers of any changes.

Personnel exiting the site will gather at a designated assembly point. To determine that everyone has successfully exited the site, personnel will be accounted for at the assembly site. If any worker cannot be accounted for, notification is given to the Site Superintendent so that appropriate action can be initiated. Contractors and subcontractors on this Site have coordinated their emergency response plans to ensure that these plans are compatible and that source(s) of potential emergencies are recognized, alarm systems are clearly understood, and evacuation routes are accessible to all personnel relying upon them.

8.6 ACCIDENT/INCIDENT REPORTING

All accidents and incidents that occur on-site during any field activity will be promptly reported to the SSO and the immediate supervisor.

If any E&R General Construction Inc. employee is injured and requires medical treatment, the Site Supervisor will report the incident in accordance with E&R General Construction Inc.'s incident reporting procedures. A copy of the final Supervisor's Report of Incident will be provided to the EHS Professional before the end of the following shift.

Table 8-6: Emergency Contacts

Emergency Coordinators / Key Personnel			
Name	**Title/Workstation**	**Telephone Number**	**Mobile Phone**
Ron Passucci	Supervisor	716-675-5277	716-870-5124
Angie Passucci	Project Manager	716-675-5277	716-863-7972
Antonio Passucci	Director of Safety	716-912-4860	716-912-4860

Organization / Agency	
Name	**Telephone Number**
Police Department (local)	911
Fire Department (local)	911
Ambulance Service ***(EMT will determine appropriate hospital for treatment)***	911
Emergency Hospital ***(Use by site personnel is for emergency cases only)***	
Mercy Hospital of Buffalo **565 Abbott Rd, Buffalo, NY 14220**	**(716) 826-7000**
Emergency Hospital Route: Attachment C	
NYSDEC 24-Hour Spill Hotline	**(800) 457-7252**

Public Utilities	
Name	**Telephone Number**
Dig Safely New York	811

9 SPILL RELEASE/RESPONSE

This chapter of the HASP describes the potential for and procedures related to spills or releases of known or suspected petroleum and/or hazardous substances on the Site. The purpose of this Section of the HASP is to plan appropriate response, control, counter-measures and reporting, consistent with OSHA requirements in 29 CFR 1910.120(b)(4)(ii)(J) and (j)(1)(viii). The spill containment program addresses the following elements:

- Potential hazardous material spills and available controls.
- Initial notification and evaluation.
- Spill response.
- Post-spill evaluation.

9.1 POTENTIAL SPILLS AND AVAILABLE CONTROLS

An evaluation was conducted to determine the potential for hazardous material and oil/petroleum spills at this site. For the purpose of this evaluation, hazardous materials posing a significant spill potential are considered to be:

- CERCLA Hazardous Substances as identified in 40 CFR Part 302, where such materials pose the potential for release in excess of their corresponding Reportable Quantity (RQ).
- Extremely Hazardous Substances as identified in 40 CFR Part 355, Appendix A, where such materials pose the potential for release in excess of their corresponding RQ.
- Hazardous Chemicals as defined under Section 311(e) of the Emergency Planning and Community Right-To-Know Act of 1986, where such chemicals are present or will be stored in excess of 10,000 lbs
- Toxic Chemicals as defined in 40 CFR Part 372, where such chemicals are present or will be stored in excess of 10,000 lbs.
- Chemicals regulated under 6NYCRR Part 597, where such materials pose the potential for release in excess of their corresponding RQ.

Oil/petroleum products are considered to pose a significant spill potential whenever the following situations occur:

- The potential for a "harmful quantity" of oil (including petroleum and non-petroleum-based fuels and lubricants) to reach navigable waters of the U.S. exists (40 CFR Part 112.4). Harmful quantities are considered by USEPA to be volumes that could form a visible sheen on the water or violate applicable water quality standards.
- The potential for any amount of petroleum to reach any waters of NY State, including groundwater, exists. Petroleum, as defined by NY State in 6NYCRR
- Part 612, is a petroleum-based heat source, energy source, or engine lubricant/maintenance fluid.
- The potential for any release, to soil or water, of petroleum from a bulk storage facility regulated under 6NYCRR Part 612. A regulated petroleum storage facility is defined by NY State as a site having stationary tank(s) and intra-facility piping, fixtures and related equipment with an aggregate storage volume of 1,100 gallons or greater.

The evaluation indicates that, based on site history and decommissioning records, a hazardous material spill and/or a petroleum product spill is not likely to occur during Remedial efforts.

10 PERSONNEL ACKNOWLEDGEMENT

By signing below, the undersigned acknowledges that he/she has read and reviewed the E&R General Construction Inc. Health and Safety Plan for the **Erie County Shoreline Trail, Bethlehem Steel Project – Phase 1, City of Lackawanna, Erie County, NY** Site. The undersigned also acknowledges that he/she has been instructed in the contents of this document and understands the information pertaining to the specified work, and will comply with the provisions contained therein.

PRINT NAME	SIGNATURE	ORGANIZATION	DATE

Attachment A

Task Hazard Analyses

TASK HAZARD ANALYSIS

Date:	**Renaissance Commerce Park Public Road B**
Superintendent	**Dona Street Extension- Lackawanna NY**

WORK AREA EVALUATION

ISSUE	YES	NO
Do all site vehicles have back up alarms that operate and audible at 50 feet?		
Has a work Hazard assessment been performed?		
Does every worker know what to do in the event of an emergency?		
Is someone monitoring the atmosphere for VOC concentration levels?		
Are there (2) 55 gallon drums of clean water in nearby in case of skin contact and decon procedures		
Is there someone who will be in charge of the Dig site?		
Are Hazard zones clearly established (Hot zone, Excursion, Decon)		
Is there someone who will be directing the actual digging operation?		
Are there any results from ground sampling available for review?		

HAZARDS – You May Encounter

Chemical Hazard- VOC, SVOC, Metals, CPB.	**Odors from trucking activities**
Soil contaminated with above	**Contaminated soils fall off truck during transport**
Explosion if encroach unknown VOC	**Vehicle accident when trucking off site**
Contact with contaminated and unknown chemicals	
Un-identified and tangled REBAR on ground	
Striking property or someone with excavator	

PERSONAL PROTECTIVE EQUIPMENT – check all that apply

Hard Hat- as required	**Chemical Gloves CAT III I/O if touching contaminated soil**
Full enclosed face piece respirator as Required	**Hi Visibility Clothing**
Tyvek Poly Level C suit w/booties taped at seems if Required	**Full Face Respirator with w/P100 OV/AG filter cartridges**
Gas Detection meter	**Hearing Protection as needed**

Worker Sign off – signature indicates the plan was discussed with the signer

Name (print) Signature	Name (print) Signature	

Post Work Review

Superintendent (signature)	Date	
Project Manager (print name & sign)	Date	

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Intrusive Activities
E&R General Construction Inc.

TASK DESCRIPTION	HAZARD IDENTIFICATION	HAZARD CONTROL
General Physical Hazards	– Slip/Trip/Fall – Cold/Heat Stress – Biological Hazards – Cuts/Scrapes/Bruises – Manual lifting – Adverse Weather	– Level D PPE required. – Maintain a clean and organized work area. – Watch your step and ensure proper footing. – Provide drinking water and first aid kit. – Wear appropriate clothing for weather conditions. – Assess work area for poisonous plants and animals and communicate observations to avoid them. – Wear appropriate work gloves for task – Use proper lifting techniques by bending and lifting with legs and not back, and do not over extend or twist (Do not lift over 49lb. without assistance) – Be aware of changing weather condition and provide appropriate weather gear. – When work is halted due to inclement weather, personnel are to seek shelter in vehicles or building designated Shelter in Place (SIP)
Utility Clearances	☐ See General Physical Hazards	– In addition to General Physical Hazards… – Review available maps and have utility locate performed by One Call or private locator.
Establish exclusion zone/site setup	☐ Traffic in adjacent roadway	☐ Use combination of vehicles, cones, traffic barriers and caution tape
Heavy Equipment operation.	– Overhead and underground utilities – Noise Hazard – Pinch points/swing radius – Chemical exposure potential – Eye Injury – Fire	– Confirm Utility Locations – Inspect vehicles and equipment daily (Checklists provided in HASP) – Maintain clean and organized work area. – Wear appropriate clothing and PPE, (no loose clothing or jewelry) – Earplugs and/or earmuffs required in EZ – Position the equipment and personnel up wind of intrusive excavation – Monitoring breathing zone with PID and upgrade PPE as required. – Avoid creating splash hazards. – Keep a safe distance from equipment. – Use hand signals, keep clear of moving equipment, and ensure eye contact with operator prior to approaching. – Have fire extinguisher on site.
Sample collection and packaging	– Chemical exposure potential – Cuts/Scrapes – Manual lifting of equipment	– Follow proper decontamination procedures – Use proper lifting techniques and do not over-extend
Material Handling	– Chemical Exposure – Splash Hazard – Spills	– Wear modified level D PPE when necessary (Tyvek and face shields or dust masks) – Have portable eyewash on site – Inspect Drums/Containers prior to use for integrity and contaminants – Place soil in drums/containers as soon as practicable. – Store drums/containers in designated area
Equipment Decontamination	– High pressure water – Splash Hazard	– Spray away from body – Wear full-face shield, gloves, rubber boots and tyvek or other suitable attire.

CHEMICAL HAZARDS & MONITORING PROCEDUREs

VOC, CVOC PAH, metals - Refer to Section 5 of the HASP for additional information. Note -
Area monitoring with PID (Mini Rae 10.6eV) for general precautionary purposes.
≥ 1 ppm requires upgrade PPE according to Table 5-2.
Dust hazard not anticipated with current SOW. If dust generation observed, implement dust monitoring.

ADDITIONAL SAFETY CONSIDERATIONS

1. Ensure all personnel have read the HASP
2. Ensure all equipment is equipped with necessary fire extinguishers (min 5 lbs BC). Ensure equipment has a working kill switch and back-up alarms, and follow equipment inspection procedures.
3. Ensure underground utilities are verified with facility, marked, markings maintained, and operator aware of location
4. All equipment operators must be Competent Persons for the task/equipment being performed/operated.
5. All ground personnel must stay clear of equipment and make eye contact (and receive confirmation) with operator prior to approaching. Wear high visibility reflective vests and stay out of travel lanes and swing radius of heavy equipment.
6. Dust hazard expected to be minimal due to saturated state of soils and regular precipitation. If visible emissions of dust observed, then dust suppression techniques will be implemented.
7. Follow safe driving procedures. Always use the buddy system when moving vehicles. Plan your travel path ahead of time Use maps and known construction zones to make your selection. Consult with the other team members before making any changes to travel path.
8. Use an equipment checklist to verify you have the appropriate equipment/tools for your tasks. Consult appropriate THAs or SOPs.
9. Stow all materials in vehicle properly, use appropriate cases and bags. Secure equipment in bed of truck with netting or straps. Do not leave any equipment loose in the cab or bed of the truck. It can cause property damage or serious injuries to others or yourself by falling-off from vehicle.
10. When securing equipment, watch for pinch points. Straps and netting can get caught on objects and snap back as well as trap a finger if hand placement is not correct. Use a buddy to help secure equipment when possible.
11. Conduct equipment inspection of all hoses and switches. Stay clear of running equipment.
12. Maintain good housekeeping practices. When possible, use mechanical equipment to perform lifting of heavy objects. When lifting, follow safe lifting practices. Use the buddysystem when lifting.
13. Stay clear of moving rig, do not move rig with mast raised, do not drive on slopes greater than 30 degrees, avoid soft areas when moving rig and setting up, chock wheels. Use spotter when moving rig, check for overhead obstructions.
14. Wear nitrile gloves when collecting samples in soil to avoid dermal contact with potential contaminants. Be observant for tripping hazards, holes, stickups, vines, old fence lines, etc.
15. For equipment decontamination, triple rinse using distilled or deionized water and alconox for first rinse and distilled or deionized water for second and third rinses. Always clean materials between locations and at the site. Do not bring equipment back to the office without proper decontamination.

APPLICABLE OPERATIONAL SAFETY PROCEDURES	PPE
Hand & Power Tools Manual Lifting Wildlife, Plants, Insects Excavation and Trenching Overhead Electrical Lines Identifying Underground Utilities Heat Stress	**LEVEL D** • ANSI approved hard hat • ANSI approved safety glasses • Shirts with sleeves and full-length pants. • ANSI approved steel safety-toe boots or approved equivalent. • High visibility reflective traffic vest • Nitrile Gloves • Leather work gloves • Hearing protection required when around operating machines (85 dba OSHA PEL). • First aid kit (located in vehicle). • Fire extinguisher (located in vehicle). **Modified LEVEL D** Tyvek suit **LEVEL C (upgrade per Air Monitoring Requirements)** • APR with OVAG cartridges

Acknowledgement

All employees, subcontractors, and visitors must sign the Acknowledgement form, in this section, before conducting field activities at this site.

By signing this form, E&R General Construction Inc. Employees agree that:

- I have read this Task Hazard Analysis and I understand the requirements of the THA.
- I will conduct work at this site in accordance with the requirements of the THA.

By signing this form, subcontractors and visitors agree that:

- I have read and understood the potential hazards associated with the site.
- I will ensure compliance with my company's policies on health and safety.

Print Name & Company	Date	Signature
Print Name & Company	Date	Signature
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Renaissance Commerce Park
Road B-Dona St. Extension, City of
Lackawanna, NY

MOBILIZATION/DEMOBILIZATION
E&R General Construction Inc.

TASK DESCRIPTION	HAZARD IDENTIFICATION	HAZARD CONTROL
MOBE - Check the weather.	Unexpected storm – lightning, rain, snow (slip hazard), wind.	Check local weather forecast, have a weather radio for remote sites, observation and communication among team members. Discuss weather issues during tailgate safety meeting. At the first sign of lightning, thunder or strong winds, immediately move away and take shelter. Do not resume work until 30 minutes have passed without signs of storm.
	Heat and cold stress.	Know the symptoms of heat and/or cold stress, and the potential for their occurrence based on expected weather conditions. Take precautions to avoid them. Refer to the HASP or ask your supervisor if you have questions.
MOBE - Mobilize with equipment and supplies.	Vehicle accident.	Follow safe driving procedures. Always use the buddy system when moving vehicles. Plan your travel path ahead of time. Use maps and known construction zones to make your selection. Consult with the other team members before making any changes to travel path.
	Accidents caused by use of improper equipment/tools.	Use an equipment checklist to verify you have the appropriate equipment/tools for your tasks.
	Injuries caused by improper lifting techniques.	Use proper bending/lifting techniques by bending and lifting with legs and not with back.
	Damage to equipment/tools and/or accidents with loose objects.	Stow all materials in vehicle properly, use appropriate cases and bags. Secure equipment in bed of truck with netting or straps. Do not leave any equipment loose in the cab or bed or the truck. It can cause property damage or serious injuries to others or yourself by falling-off from vehicle.
Perform perimeter walk around of vehicle for damage or unusual conditions.	Low air pressure, flat tire, blowout, impaired vision, collision, injury or death.	Complete Vehicle Inspection checklist. Assure tires are properly inflated and there is sufficient tread (including spare). Assure there are no cuts or bulges in the sidewalls, all wheels/rims are in good condition. Assure windshield and window glass is clean and free from obstructions. Lift wiper arms and check wiper blades for damage or deterioration. Check to see that all lights work. Check for fluid leaks under vehicle. Check oil, radiator, brake, transmission and washer fluid levels. Check behind vehicle for obstructions.
Slowly pull out of parking space.	Collision with other vehicles, pedestrians, or stationary objects.	Release parking brake. Check mirrors and over shoulder in all directions prior to slowly pulling out of parking space. Signal if parallel parked along a street. Use a spotter if available.

DURING TRIP - Keep your eyes moving.	Collision, injury or death to occupants or other parties.	DRIVE DEFENSIVELY. Move eyes at least every 2 seconds. Scan major and minor intersections before entry (left-right-left). Check mirrors when slowing or stopping vehicle. Scan mirrors frequently, at least one mirror every 5-8 seconds. Avoid staring while evaluating road conditions. Do not use cell phones or perform other distraction activities while car is in motion. If necessary, pull off the roadway and park prior to performing other activities. Be cautious about the use of cruise control if available on vehicle - never use in inclement weather, within cities and towns, or during hours without daylight.
Aim high in steering.	Collision, injury or death to occupants or other parties.	Maintain 12 second eye lead time (1 1/2 blocks in city traffic, 1/4 mile in highway traffic). Assess information from distant objects (i.e., flashers on?). Adjust eye lead distance to speed.
MOBE - Driving and/or walking to sample locations.	Damage to or equipment vehicles Due to surface/subsurface obstructions.	Inspect area before driving and /or walking. Identify possible hazards such as holes, obstructions protruding from the ground, or debris that may be scattered on the ground. Contact site manager immediately and do not proceed if any conditions are observed that could make driving/walk in the area unsafe and that cannot be fixed with the equipment or personnel onsite.
	Fixed facilities	When parked near a fixed facility (building, monitoring well, bollards, etc…) use the buddy system when backing-up vehicle.
	Biologic hazards such as insects, poison ivy, spiders, and snakes.	Check immediate area for potential hazards such as poison ivy, spiders, wasps, snakes, etc. Use bug repellent and sunscreen as necessary. Use a bar to clear out objects and/or vegetation from spiders and/or snakes (don't use your hands or feet).
MOBE - Set up equipment at each location.	Biologic hazards such as insects, poison ivy, spiders, and snakes.	Check immediate area for potential hazards such as poison ivy, spiders, wasps, snakes, etc. Use bug repellent and sunscreen as necessary. Use a bar to clear out objects and/or vegetation from spiders and/or snakes (don't use your hands or feet).
	Injuries caused by improper lifting techniques.	Use proper bending/lifting techniques by bending and lifting with legs and not with back. Use buddy system to lift heavy objects.
	Injury/Damage from fencing and gates	Ensure fencing is secured and gates secured to prevent injury or damage from accidental closing. Use cables, locks, or drop pins to prevent accidental closure.
MOBE/DEMOBE - Secure equipment in vehicle.	Damage to equipment/tools and/or accidents with loose objects.	Stow all materials in vehicle properly, use appropriate cases and bags. Secure equipment in bed of truck with netting or straps. Do not leave any equipment loose in the cab or bed or the truck. It can cause property damage or serious injuries to others or yourself by falling-off from vehicle.
	Pinch points.	When securing equipment, watch for pinch points. Straps and netting can get caught on objects and snap back as

		well as trap a finger if hand placement is not correct. Use a buddy to help secure equipment when possible.
Perform perimeter walk around of vehicle for damage or unusual conditions.	Low air pressure, flat tire, blowout, impaired vision, collision, injury or death.	Complete Vehicle Inspection checklist. Assure tires are properly inflated and there is sufficient tread (including spare). Assure there are no cuts or bulges in the sidewalls, all wheels/rims are in good condition. Assure windshield and window glass is clean and free from obstructions. Lift wiper arms and check wiper blades for damage or deterioration. Check to see that all lights work. Check for fluid leaks under vehicle. Check oil, radiator, brake, transmission and washer fluid levels. Check behind vehicle for obstructions.
Demobilize from site.	Vehicle accident. Fixed facilities	Follow safe driving procedures. Always use the buddy system when moving vehicles. Use maps and known construction zones to make your selection. Consult with the other team members before making any changes to travel path. When parked near a fixed facility (building, monitoring well, bollards, etc…) evaluate and plan route prior to mobilization. Use the buddy system when backing-up vehicle.

ADDITIONAL SAFETY CONSIDERATIONS

No Chemical Hazards anticipated.

Use caution around delivery trucks and stay clear if not involved in spotting operation. Use one person to communicate with driver via hand signals to avoid unnecessary confusion. Watch for overhead utilities. Wear high vis vest at alltimes

Maintain eye contact with equipment operator during stone installation and use proper handsignals. Do not approach running equipment unless eye contact is made, and acknowledgment is received from operator.

Stow all materials in vehicle properly, use appropriate cases and bags. Secure equipment in bed of truck with netting or straps. Do not leave any equipment loose in the cab or bed or the truck. It can cause property damage or serious injuries to others or yourself by falling-off from vehicle.

When securing equipment, watch for pinch points. Straps and netting can get caught on objects and snap back as well as trap a finger if hand placement is not correct. Use a buddy to help secure equipment when possible.

Keep clear area around work area, maintain good housekeeping practices. When possible, use mechanical equipment to perform lifting of heavy objects. When lifting, follow safe lifting practices. Use the buddy system when lifting.

Avoid the use of chains for lifting. If necessary, ensure chain is equipped with annual load rating cert and proper hooks being used. For synthetic slings, ensure red warning line is not showing and item is in good condition. For wire ropes, inspect for broken wires (6 in a lay, 3 in a strand).

Keep line of site with co-worker and ensure regular verbal contact. If out of the line of site, ensure radio or cell phone contact is established and maintained.

Renaissance Commerce Park
Road B Dona St, Extension
City of Lackawanna, NY

APPLICABLE OPERATIONAL SAFETY PROCEDURES	PPE
Wildlife, Plants, Insects Heat Stress	**LEVEL D** • ANSI approved hard hat, • High visibility reflective traffic vest • Full-length pants. • ANSI approved steel safety-toe boots or approved equivalent • ANSI approved safety glasses • Hearing protection required when around operating machines (85 dba OSHA PEL). • First aid kit (located in vehicle). • Fire extinguisher (located in vehicle).

Acknowledgement

All employees, subcontractors, and visitors must sign the Acknowledgement form, in this section, before conducting field activities at this site.

By signing this form, E&R General Construction Inc. employees agree that:

- I have read this Task Hazard Analysis and I understand the requirements of the THA.
- I will conduct work at this site in accordance with the requirements of the THA.

By signing this form, subcontractors and visitors agree that:

- I have read and understood the potential hazards associated with the site.
- I will ensure compliance with my company's policies on health and safety.

Print Name & Company	Date	Signature
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TASK HAZARD ANALYSIS (THA)

Renaissance Commerce Park
Road B-Dona St. Extension
City of Lackawanna, NY

TASK NAME

Site Work
E&R General Construction Inc.

TASK DESCRIPTION	HAZARD IDENTIFICATION	HAZARD CONTROL
1. Loading and driving vehicle.	• Heavy lifting	• Use two people for carrying/lifting heavy objects and use proper lifting techniques • Wear leather gloves or rubber coated cotton gloves for hand protection • Inspect Vehicle prior to transporting • Check tire pressure and brake lights on the vehicle • Check that materials for transport are properly secured before transporting.
	• Vehicle may roll or move	• Driver shall verify location of obstructions while backing • Help guide driver or use spotter if necessary • Bring wheel chocks, secure the vehicle when it is parked or in service
	• Traffic and stationary structures	• Observe oncoming traffic for safe operation, • Observe poles and stationary structures, avoid backing up whenever possible • Wear traffic vests, radio & cell phone use prohibited while driving
	• Spill or leaks	• **ENVIRONMENTAL** - Bring spill kit or spill materials appropriate for the task
	• Safe vehicle operation	• Do not exceed payload of vehicle
2. Pre Task Assessment	• Physical and chemical hazards	• Have 10 lbs fire extinguisher within 25 feet of work location. • Conduct a tailgate meeting with the field crew and review critical actions, hazards, and methods to protect with individuals at the work site, include review of MSDS hazards.
	• Flammable materials	• **ENVIRONMENTAL** - Follow all requirements in the Waste Management Procedure for dealing with any waste product, sludge, soil or contaminated residue from this project.
	• Poor communication	• Radio/Phone – Use hand signals when appropriate
3. General Physical Hazards	• Slip/Trip/Fall	• Maintain clean and organized work area.
	• Minor Cuts and Bruises	• Wear appropriate clothing while working. • Use appropriate work gloves for the task to protect hands.
	• Cold/Heat Stress	• Wear clothing appropriate for temperatures and wind effects. • Provide liquids (water/electrolytes) when potential for heat stress is present. • Monitor personnel for fatigue and heat/cold stress.
	• Muscle Strain/Injury	• Avoid manual handling of heavy objects. Utilize mechanical methods when possible (e.g., drum dolly, hydraulic equipment, etc.). • When mechanical methods are not available get help in lifting heavy or awkward objects.
	• Lifting	• Lift with legs keeping back straight. • Do not twist. • Inspect footing and travel pathway prior to lifting. • Get help when lifting heavy objects.
	• Use of hand tools	• Wear leather gloves, safety glasses and other PPE as required. • Dispose and replace any broken tools. • Ensure proper storage of tools. • Review manual/instructions for proper tool usage.
4. Isolated Work	• Traffic	• Wear traffic vest and watch for vehicles.
	• Subsurface structures	• Follow all client and company-required protocols for intrusive work clearance. • Watch for changes in soil types or other indications of backfill or non-native material.

	• Back strain	• Use proper lifting techniques and tools. • When possible use buddy system
	• Hydrocarbon exposure	• Wear appropriate PPE and monitor breathing space using calibrated PID.
5. Decontamination	• Contact with high pressure water and contaminated material	• Direct pressure spray wand away from people and keep hands and feet away from discharge. • Personnel performing decon to wear full-face shield, gloves, rubber boots and tyvek or polycoated tyvek.
6. Material Handling/Derived Wastes.	• Splash with liquid from drilling/sampling	• Wear proper PPE while working. • Avoid contact and use caution when working with potentially contaminated fluids. • Use portable eyewash station in the event of splashes to the head/upper torso as needed and notify emergency (911/site security) as required by the situation. Decontaminate personnel as needed.
	• Storage/Spill.	• Follow the Waste Management plan for solid and liquid derived wastes located in Off-site HASP. • Inspect drums/containers for integrity and contaminants prior to use. • Place soil and other material into drums/containers as soon as practicable. • Store drums/containers in a designated storage area. • Implement a Spill Contingency as needed. • Have containment, spill clean-up materials on hand and notify regulatory agencies and local authorities as necessary.
7. Material Handling/Derived Wastes. (continued)	• Vehicle/Equipment Failure	• Inspect vehicles and equipment intended for material handling or transport. • Ensure equipment (including rigging) is rated for proposed use.
8. Adverse Weather	• Inclement Weather conditions (high winds, lightning, etc.)	• Personnel are to be aware of changing weather conditions at and near the site. • When work is halted due to inclement weather (i.e. thunderstorms or high wind). • Personnel are to seek shelter in vehicles or buildings. • Personnel to use appropriate weather gear (i.e. rain coats, etc.).
9. Decontamination	• Spills/Leaks • Improper disposal of Decon Fluids	• ENVIRONMENTAL – Preplanning follow Waste Management Procedures for residuals management, recycling • Use proper spill containment materials • Follow current disposal protocol as instructed by operations and according to the Safe Work Permit conditions.
10. Site cleanup – Secure location	• Traffic	• Wear traffic vest and watch for vehicles.
	• Debris or equipment left onsite or unsecured can cause tripping hazard. • Notify the Operations Department E&R General Construction Inc. is leaving the area	• Wear traffic vest and watch for vehicles. • Make careful visual sweep of site. • Check for tools, debris, or dirt left on site. • Exercise proper housekeeping practices. • Check out with the Unit Operation

TASK HAZARD ANALYSIS (THA)

Renaissance Commerce Park
Road B- Dona St, Extension
City of Lackawanna, NY

APPLICABLE OPERATIONAL SAFETY PROCEDURES

Hand & Power Tools Manual
Lifting
Wildlife, Plants, Insects Heat
Stress

PPE

LEVEL D

- ANSI approved hard hat,
- High visibility reflective traffic vest
- Full-length pants.
- ANSI approved steel safety-toe boots or approved equivalent
- ANSI approved safety glasses Nitrile Gloves
- Hearing protection required when around operating machines (85 dba OSHA PEL).
- First aid kit (located in vehicle).
- Fire extinguisher (located in vehicle).

CHEMICAL EXPOSURE HAZARD

PAHs. PCBs and metals - Refer to Section 5 of the HASP for additional information. Note - Area monitoring with PID for general precautionary purposes.
≥ 1 ppm requires upgrade PPE according to Table 5-2.
Dust hazard not anticipated with current SOW. If dust generation observed, implement dust monitoring.

ADDITIONAL SAFETY CONSIDERATIONS

- Follow safe driving procedures during mobe/demobe. Always use the buddy system when moving vehicles. Plan your travel path ahead of time and use maps and known construction zones to make your selection. Consult with the other team members before making any changes to travel path.
- Use an equipment checklist to verify you have the appropriate equipment/tools for your tasks. Consult appropriate SOPs.
- Stow all materials in vehicle properly, use appropriate cases and bags. Secure equipment in bed of truck with netting or straps. Do not leave any equipment loose in the cab or bed or the truck. It can cause property damage or serious injuries to others or yourself by falling-off from vehicle.
- When securing equipment, watch for pinch points. Straps and netting can get caught on objects and snap back as well as trap a finger if hand placement is not correct. Use a buddy to help secure equipment when possible.
- Ensure all personnel have read and acknowledged the THA.
- Verify that all subsurface features have been identified using maps, and utility notification service
- Check sample location for potential hazards such as evidence of underground pipes such as valves or vent pipes, surface obstructions such as rubble, old foundations or rebar.
- Identify possible slip, trip, and fall hazards such as holes, obstructions protruding from the ground, or debris that may be scattered on the ground.
- Use proper bending/lifting techniques by bending and lifting with legs and not with back. When possible, use mechanical equipment to perform lifting of heavy objects. Get assistance when needed.
- Ensure personnel using equipment have been properly trained to operate it.
- Wear nitrile gloves when collecting samples in water to avoid dermal contact with potential contaminants. Be observant for tripping hazards, holes, stickups, vines, old fence lines.
- For equipment decontamination, triple rinse using distilled or deionized water and alconox for first rinse and distilled or deionized water for second and third rinses. Always clean materials between locations and at the site. Do not bring equipment back to the office without proper decontamination.
- Consult with Level 2 Shipper if free-phase liquids present in samples.

Acknowledgement

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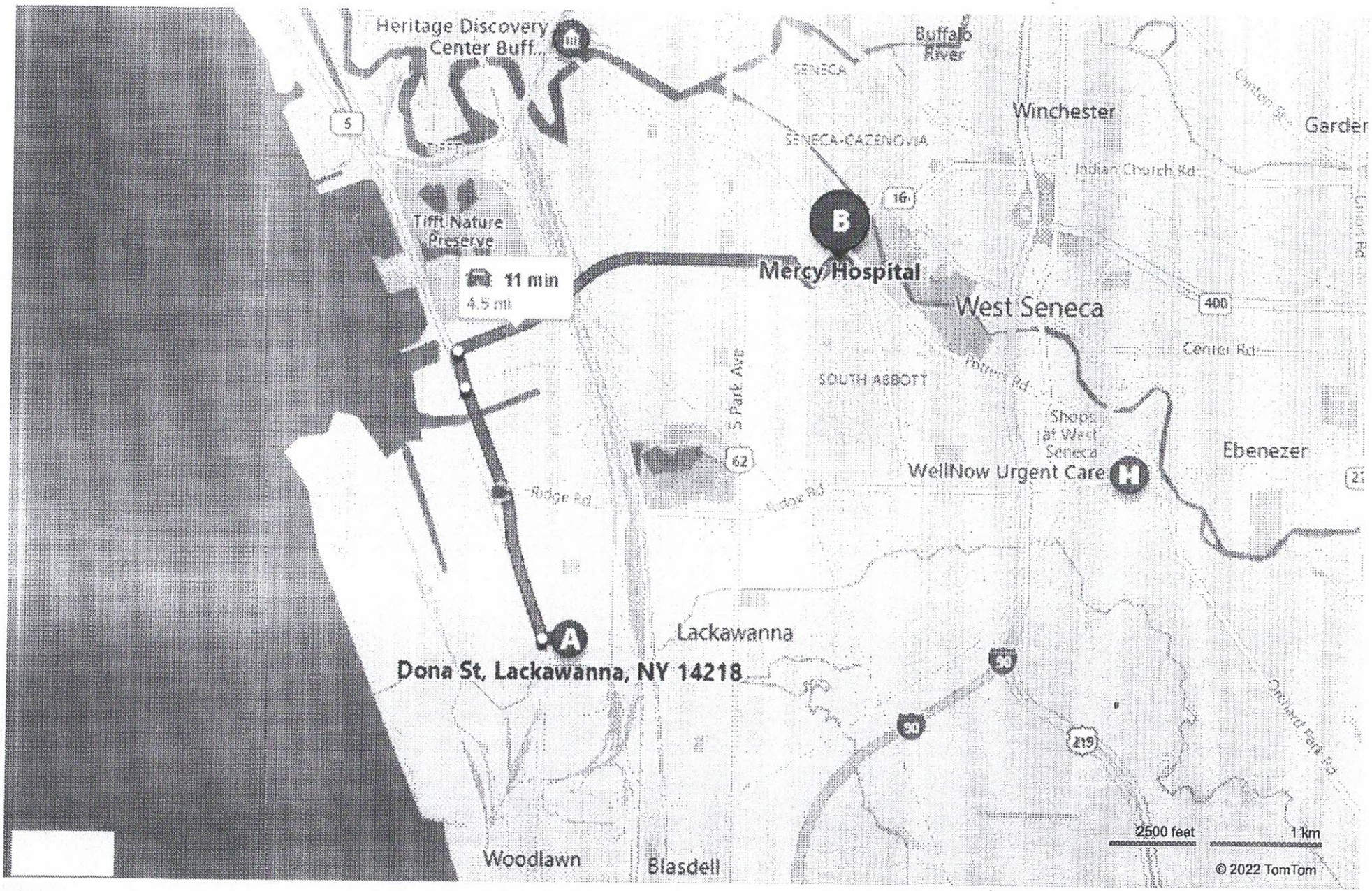
- I will ensure compliance with my company's policies on health and safety.

Print Name & Company	Date	Signature

Attachment B

Emergency Occupational Hospital Route / Detail Map

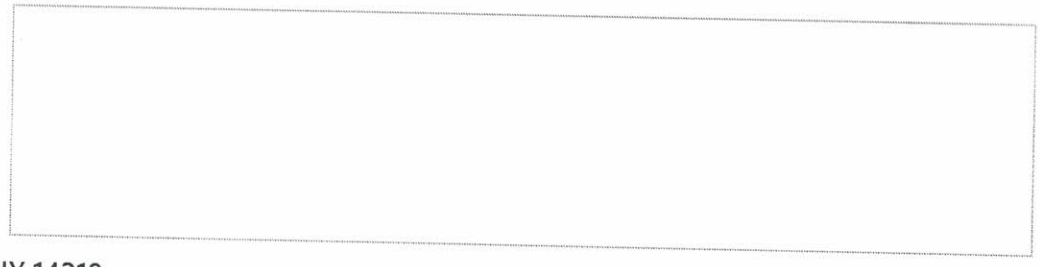

Heritage Discovery Center Buff...
Buffalo River
SENECA
Winchester
SENECA-CAZENOVIA
Indian Church Rd
Tifft Nature Preserve
11 min
4.5 mi
Mercy Hospital
West Seneca
400
Central Rd
S Park Ave
SOUTH ABBOTT
Shops at West Seneca
WellNow Urgent Care
Ebenezer
Ridge Rd
Lackawanna
Dona St, Lackawanna, NY 14218
Woodlawn
Blasdell
2500 feet
1 km
© 2022 TomTom

bing maps

A Dona St, Lackawanna, NY 14218

B Mercy Hospital, 565 Abbott Rd, Buffalo, NY 14220

11 min , 4.5 miles
Light traffic (Leave at 11:09 AM)
Via NY-5 E, Tifft St



A Dona St, Lackawanna, NY 14218

↑	1.	Head **west** on **Dona St** toward Wilmuth Ave	0.2 mi
↱	2.	Turn **right** onto **NY-5 / Hamburg Tpke** NOCO Express on the corner	1.5 mi
↱	3.	Take the ramp on the **right** for **Tifft St** and head toward **BUFFALO LAKESIDE COMMERCE DRIVE / GALLAGHER BEACH / NFTA BOAT LAUNCH / TIFFT NATURE PRESERVE / TIMES BEACH NATURE PRESERVE**	0.2 mi
↻	4.	At the roundabout, take the **1st** exit for **Tifft St**	2.1 mi
↱	5.	Turn **right** onto **McKinley Pkwy**	0.2 mi
↰	6.	Turn **left** onto **Belvedere Rd**	0.2 mi
↱	7.	Turn **right** onto **Mercy St**	348 ft
↰	8.	Turn **left** onto **Choate Ave**	328 ft
↰	9.	Turn **left**	325 ft
	10.	Arrive at destination The last intersection before your destination is Choate Ave	

B Mercy Hospital