

**The United Illuminating Company**

**Development and Management Plan  
for the Construction of  
Shelton Substation**

**City of Shelton, Connecticut**

**Docket No. 433**

**May 24, 2013**



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## **Development and Management Plan Shelton Substation Shelton, CT**

The United Illuminating Company (“UI”) provides this Development and Management (“D&M”) Plan for the construction of the Shelton Substation<sup>1</sup> in the City of Shelton, Fairfield County, Connecticut. Shelton Substation will become part of UI’s 115 kilovolt (kV) and 13.8 kV electric system and will be interconnected on the 115 kV system between the existing Trap Falls, Stevenson, and Ansonia Substations. The Shelton Substation was certificated by the Connecticut Siting Council (“CSC” or “Siting Council”) in Docket 433 on March 7, 2013. UI’s Shelton Substation Project (“Project”) will consist of two basic components:

- 1) Construction of the new 115/13.8 kV bulk distribution substation; and
- 2) Reconfiguration of one of the existing 115 kV transmission lines to sectionalize the line through the substation.

This D&M Plan addresses the construction of the Project and its two components as noted above.

This D&M Plan consists of the following sections and appendices:

- 1) Introduction
- 2) Project Description
- 3) Development and Management Plan Details
- 4) Construction and Rehabilitation
- 5) Project Schedule

### Appendices

- Appendix A Substation Drawings
- Appendix B Erosion and Sediment Control Plan
- Appendix C D&M Plan Checklist for Shelton Substation

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<sup>1</sup>UI plans to change the substation name to Pootatuck Substation.

## **SECTION 1 INTRODUCTION**

This D&M Plan was prepared in accordance with the requirements contained within the Regulations of Connecticut State Agencies (RCSA), Sections 16-50j-60 through 16-50j-62, as they pertain to construction of a new substation project and in accordance with the Decision and Order received from the CSC for the Project in Docket 433.

## SECTION 2 PROJECT DESCRIPTION

The Project will be located on a two-acre portion of UI's six-acre property at 14 Old Stratford Road in the City of Shelton. The six-acre property is bounded to the east by State Route 8, to the south by Old Stratford Road, to the west by Pootatuck Place, and to the north by the Far Mill River. A Connecticut Light and Power Company ("CL&P") easement, occupied by 115 kV overhead transmission lines, extends across the western portion of the property. The Substation will be located on the western portion of the property, adjacent to the CL&P transmission line easement. The western edge of the site is within the CL&P existing transmission line right-of-way ("ROW"). CL&P's ROW is 110 feet wide and supports its 115 kV transmission lines. Refer to drawing number XXXXX-011 in Appendix A.

The site is located on a six-acre parcel of vacant, former industrial land. Most of the site is flat with a gentle slope from east to west. Grasses and low brush comprise the ground cover on the majority of the parcel. Shrubs and small trees which have taken over in the the southern section of the site, near Old Stratford Road. Mature trees are present on the northern boundary of the site, along the banks of the Far Mill River.

The Project will consist of an outdoor, air-insulated, low profile 115 kV switchyard and the following equipment:

- Two 30/40/50 MVA, 115/13.8 kV power transformers with load tap changers
- 13.8 kV bus system connected to the power transformers and the power distribution center (PDC) enclosures
- Low profile 115 kV and 13.8 kV aluminum tubular bus work supported by station post insulators
- One 115 kV SF6 circuit breaker
- Eight vertical break disconnect switches
- Instrument transformers
- Three tubular steel H-frame takeoff structures within the substation fence
- Miscellaneous steel structures for equipment and bus work support to be installed on concrete-filled drilled pier foundations
- Six shielding masts for lightning protection
- Two high-mast light poles
- One control enclosure
- Two power distribution center ("PDC") enclosures
- Four steel monopole dead-end structures

UI will erect a single-story control enclosure on the northern side of the Project site. The protection, control and metering equipment and alternating current ("AC") and direct current ("DC") power equipment will be located in the control enclosure. UI will erect two single-story PDC enclosures on the eastern side of the Project site. The 13.8 kV metal-clad switchgear, the protection, control and metering equipment and AC and DC power equipment will be located in the PDC enclosures (Appendix A, drawing XXXXX-400). The enclosure roof peak will be approximately 16 feet above grade. The control enclosure, PDC enclosures, transformers, circuit breakers, and station post insulators will be specified with an American National Standards Institute ("ANSI") light gray color finish.

The lightning shielding masts will extend approximately 55 feet above grade, and the takeoff structures will extend approximately 48 feet above grade. The three takeoff structures will be designed as tubular steel H-frame structures. The switchyard high bus will be approximately 26 feet above grade. Two new single pole tubular steel structures (#A and #B) that will be located within the substation fence will be approximately 70 feet and 65 feet, respectively, above grade. Two new single pole tubular steel dead-end structures (#1342A and #1341A) will be approximately 95 feet and 70 feet, respectively, above grade, and will be located within CL&P's existing transmission line ROW.

The existing 115 kV transmission line will be segmented into two transmission lines through the substation. After the line is segmented, the Project will have a tie bus that is fed by two 115 kV transmission lines. No additional ROW will be required.

From the new single pole tubular steel dead-end structure (#1342A) in CL&P's ROW, CL&P's transmission line will be routed south-east for approximately 160 feet to the single pole tubular steel structure (#B), and then routed to the north takeoff structure. The line will be routed through a sectionalizing circuit breaker and then exit the substation through the south takeoff structure. From that south takeoff structure, the line will be routed to the single pole tubular steel structure (#A), and then span approximately 130 feet to the new single pole tubular steel dead-end structure (#1341A) to reconnect to CL&P's transmission line.

Both lines will transition from a vertical configuration to a horizontal configuration as the lines approach the Project's takeoff structures. The lines will then descend to the Project's bus work. The lines will be connected to and pass through the switchyard using rigid aluminum bus work and stranded jumper conductors. The total length of the re-routed transmission lines from the existing transmission line to the two new takeoff structures is approximately 550 feet.

The distribution circuit get-away from the substation at this site will be two new PVC underground duct lines from the substation property; one exiting directly onto Old Stratford Road directly in front of the new substation and the other along Pootatuck Place to Old Stratford Road. The new duct lines would then extend northwest on Old Stratford Road approximately 1,150 feet to Bridgeport Avenue and southeast on Old Stratford Road approximately 800 feet to the east of the State Route 8 where they would tie in with UI's existing distribution facilities.

No existing major overhead or underground utilities will require removal or relocation as a result of the construction and operation of the Project, other than the work associated with segmenting the existing transmission line.

## SECTION 3 DEVELOPMENT AND MANAGEMENT PLAN DETAILS

The following section provides details for the Project.

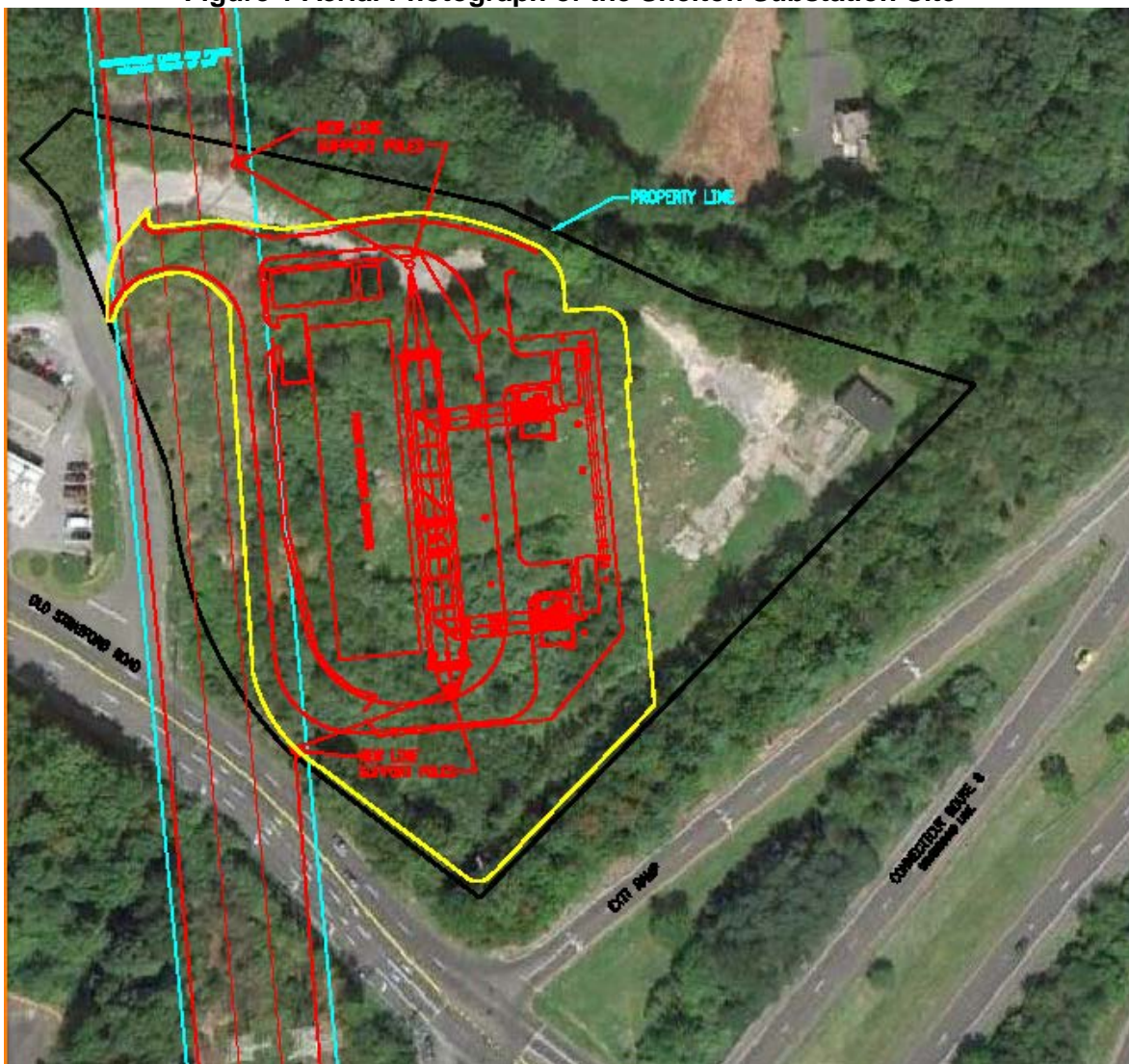
### Key Map

A key map of the Project site is included with this D&M Plan (Appendix A, drawing XXXXX-011). The key plan is a reproduction, at scale of 1 inch = 2,000 feet, of the most recent U.S. Geological Survey topographic map showing the site location.

### Aerial Photograph

The aerial photograph (Figure 1) includes an overlay of the new substation facilities (shown in red) with the general construction disturbance boundary (including vegetation clearing) shown in yellow.

**Figure 1 Aerial Photograph of the Shelton Substation Site**



### **Plan Drawings**

The D&M Plan includes several drawings that identify the location of the Project site, public roads, the probable location of all substation equipment, enclosures, fence, access points, and existing vegetation that must be removed (see Appendix A).

### **Land Ownership**

UI owns the land that will be occupied by the equipment and materials installed for the Project. No additional land acquisition will be required.

### **Public Roads and Lands**

The Project site is bounded to the east by State Route 8, to the south by Old Stratford Road, to the west by Pootatuck Place, and to the north by the Far Mill River. Pootatuck Place is a local street and Old Stratford Road can be defined as a primary through street. All streets are paved with curb and gutter and are in good condition. Commercial properties are situated near the Project site on the west side.

### **Grading Plan**

The Project site is located at an approximate elevation of 113.75 feet (NGVD29 datum) above sea level. Contour variation across the entire site is moderate. Minimal cut will provide some backfill material; however, most backfill will need to be imported to build the site to the proper grade for the Project facilities. A Grading Plan is included in Appendix A that shows the existing and new contours on the site in 1-foot contour intervals. The Grading Plan will be used along with the site's Erosion and Sediment Control Plan (see Appendix B).

### **Structure and Foundation Locations**

The location and type of support structures and buildings and their corresponding foundations at the Project site are shown on the Site, Substation, and Foundation Plan and Section Drawings included with this D&M Plan (see Appendix A). These drawings depict the site plans and cross-sections of the new substation. Detailed foundation plans are also included in these drawings.

In accordance with the Siting Council's Decision and Order condition 1(b), the foundations for critical equipment will be elevated a minimum of 1 foot above the Federal Emergency Management Agency (FEMA) - designated 500-year floodplain.

All transmission lines entering and exiting the substation will be overhead. Thus, the new substation will contain three above ground H-frame dead end (takeoff) structures located inside the substation fence.

### **Access Points for Construction**

Construction, maintenance, and operation access to the substation site will be from Pootatuck Place along the northern edge of the property, in the same general location as the existing access to the site.

Temporary construction roads across private property will not be required. Access points are shown on the Site Plan Drawing in Appendix A, drawing XXXXX-001.

After construction has been completed, the access road to the substation will be graded and paved with asphalt to provide permanent access.



### **Material Laydown Areas**

The area on UI's property is large enough to accommodate the required construction activities and provide suitable space for laydown of all equipment and material required for the substation construction.

UI intends to locate construction trailers, small material storage trailers, construction equipment, and substation equipment at the actual site during the construction of the Project. A Substation Construction Facilities Plan Drawing has been included in Appendix A (drawing XXXXX-805) to show the areas where these items will be placed during construction.

### **Vegetation**

**Limits of Clearing** - The limits of clearing for the substation are shown on the aerial photograph in Figure 1. All vegetation will be removed at the Project site for areas within the area of disturbance boundary and access road. This vegetation consists primarily of shrub-scrub and herbaceous species; no mature trees will be removed. Clearing is required outside the substation perimeter fence to allow the grounding conductor and crushed rock surfacing to be installed. In addition, UI's construction contractor will assess whether any trees near the perimeter fence will need to be removed; trees that could reach the 115 kV bus if they were to fall would have to be removed.

Clearing will be accomplished by conventional methods, using a combination of chain saws, hand labor and mechanized equipment. All cut vegetative materials will be removed from the site and disposed of properly.

Clearing may also be performed in the areas adjacent to Old Stratford Road and Pootatuck Place to facilitate the subsequent implementation of landscape plans requested by the City of Shelton (Appendix A, drawing XXXXX-030).

### **Environmentally Sensitive Areas**

As a former industrially-developed property, the substation site does not include any environmentally-sensitive areas, with the exception of the small, 0.17-acre wetland located along the western site boundary. Neither the 2-acre substation site nor the rest of the surrounding UI property contain any areas of defined critical habitat, threatened or endangered species habitat, high erosion potential, or ecological or historic significance. The Connecticut State Historic Preservation Office, in correspondence dated June 2012, verified that the development of the substation will have no adverse effect on any cultural resources.

The small on-site wetland will be filled as part of the substation construction. UI will obtain a permit from the U.S. Army Corps of Engineers (USACE), with approval from the Connecticut Department of Energy and Environmental Protection (CT DEEP), to fill the wetland and will provide appropriate compensatory mitigation for the loss of the wetland, in accordance with permit requirements.

The Far Mill River, which forms the northern boundary of UI's property, will not be affected by Project construction or operation. During construction, UI will install erosion/sedimentation controls along the riparian area to avoid the potential for erosion and sedimentation into the river as a result of construction activities, and also to preserve the riparian strip. In addition, UI will remove the old chain-link fence, installed by a

previous property owner, along the river. A new fence will be installed on UI's property as illustrated on the Site Plan.

### **Existing Underground Utilities**

Existing underground utilities currently located on the site include underground water supply lines to an above grade fire hydrant, storm sewer, telephone, and electrical lines.

The surrounding public streets contain several underground utilities that provide water and gas service to nearby areas. These utilities will not be disrupted by construction of the Project.

### **Erosion and Sediment Control Plan**

Erosion and sediment control measures to contain runoff are depicted on the Erosion and Sediment Control Site Plan and Details (Appendix B). These drawings contain detailed information on the location, type and design of erosion and sediment control measures that UI will employ during construction.

There is no known soil contamination on the site since the soil contamination was remediated by the former property owner. Most of the excavated material (not including the top layer) will be used as back fill material if found to be acceptable. In the unlikely event that potentially contaminated soil is encountered, excavated soils will be moved to the Soil Stockpile Area ("SSA") as designated on the Substation Construction Facilities Plan drawing XXXXX-805 (Appendix A). The potentially contaminated soil will be temporarily stored in the SSA until it can be tested and disposed of at an approved facility.

For erosion control purposes, a silt fence will be constructed around the substation work site. The silt fence will be inspected on a daily basis, and repaired or replaced as necessary, until the site is stabilized via surfacing with crushed stone. The silt fence shall remain until all earthwork is complete.

An anti-tracking pad will be installed at the construction access point. De-watering will be discharged into a frac tank during all excavation on site where ground water is encountered. The water in the frac tank will be tested for contamination. If no contamination is found, then the water will be discharged into the on-site infiltration basin. If contamination is found, the water will be disposed of at an approved facility.

## SECTION 4 CONSTRUCTION AND REHABILITATION

Construction procedures are summarized below for the control enclosure, PDC enclosures, substation equipment, and for the electrical connections at the substation.

**Razing** – Certain existing structures and materials will require removal in order to construct and complete the substation. Some materials and equipment will be reusable by UI, while remaining salvageable materials, along with debris and rubbish, will be promptly removed from the site by the construction contractor. The debris will be removed from the site to a state-approved area landfill; other materials will be properly re-used or otherwise disposed of.

Possible items for razing and disposal from the project site could include the following:

- Chain link fencing.
- Concrete or asphalt.
- Rock.
- Miscellaneous conduit and cable.
- Wood poles.
- Vegetation.
- Soil.
- Existing storm water system that would interfere with new construction
- Groundwater remediation monitoring and injection wells to be removed or relocated.

During demolition work, dust will be controlled by means of water spray, vacuum cleaners or other industry-accepted measures.

When flame cutting must be performed, flame resistant blankets will be used to protect combustible materials and finished surfaces. Dry chemical fire extinguishers will be provided in these areas and workers will be trained on their use.

**Earthwork** – Earthwork will occur at the Project site, with some cut, fill, trenching, and foundation excavation required.

### **Site Preparation**

Ground surfaces within the construction areas will be cleared of all debris, vegetation and paving. Material will be removed from the site and disposed of at a state-approved landfill. There are some locations on the site where large above grade rocks are present that must be removed as part of site preparation. Rock will be removed using backhoe mounted jackhammers and hauled off site.

### **Excavation and Backfilling**

Excavation will be required for grounding, conduit, enclosure and equipment foundations, and duct bank and conduit trenches. Mechanical equipment will be used for excavating. Stability will be provided by sheeting, shoring and bracing techniques. All excavations will be kept dry through the use of appropriate dewatering equipment and temporary surface diversions to prevent surface water and runoff from entering excavations.

Earth fill will be required as backfill for foundations and trenches. Materials from site excavations will be used as fill when such materials meet fill requirements. Compacted rock and clean natural sand may also be used as fill. Crushed rock and sand, when used as fill, will be mechanically compacted. At the new transformer locations, equipment oil spillage and leakage will be contained in rock filled concrete lined basins.

Compacted sand embedment will be used as fill in excavated trenches for conduit and pipe. Sand is typically spread on the trench bottom, compacted by vibration, and after conduit or pipe installation, deposited and compacted under and around each side of the conduit or pipe. Deposition and compaction will be performed in a manner to prevent lateral displacement of the pipe or conduit. Backfill will consist of excavated materials from the site or be furnished by the construction contractor.

Trenches for duct banks will be excavated in such a manner to permit the duct bank to rest on undisturbed earth.

Blasting will not be used for removing rock from excavations on the substation site. Blasting may be needed along Old Stratford Rd and Pootatuck Place to install the distribution duct bank.

### **Final Grading**

All ground surface areas disturbed by construction activities will be graded after all construction work has been completed. Final grading will leave the surface matching the contours and elevations of the original undisturbed ground surface except when modifications are required by pursuant to the substation site plan. The graded surface will be smooth and uniform and have effective drainage.

If, during construction, pavement and curbs are damaged or require cutting or removal, they will be repaired, replaced and/or resurfaced to match the existing surfaces. They will be finished flush with the adjoining pavement. If fills, embankments and backfills settle or erode before construction is complete, such areas will be repaired, filled, compacted and/or graded to meet the original Project specifications.

### **Site Drainage**

The drainage system for the substation will consist of a network of five catch basins with grates at grade to collect runoff throughout the site. The catch basins will transport runoff via corrugated high-density polyethylene (CHDPE) piping. The catch basin and piping network will gravity drain the collected runoff to an infiltration basin, which will be located on the southern portion of the site. The infiltration basin will hold the first 1 inch of runoff from the substation for infiltration and settling of suspended solids present in the storm water runoff. The volume of runoff larger than the water quality volume will be conveyed via an overflow spillway to Black Brook.

### **Disposal of Materials**

Excess earth materials, not suitable for re-use during substation construction, will be temporarily stockpiled on-site. Spoil piles will be protected from wind and water erosion by such means as hay bales, silt fences, and/or temporary diversion runoff

channels. Excess spoil will eventually be disposed of in an approved clean soil disposal location, construction landfill, or soil remediation center, depending on the results of soil sample testing.

### **Dust Control**

Control of fugitive dust during construction will be the responsibility of the construction contractors. On-site movement of equipment and vehicles will be restricted to predetermined areas where possible. Dust suppression may include water, calcium chloride or a temporary crushed stone cover. Dust control of earthen stockpiles will include water spray, a crusting agent, or a material covering, whichever is most feasible and effective given the size and location of the stockpile.

### **Sedimentation and Erosion Control**

Soil erosion and sediment control during construction activities will be as defined on the Erosion and Sediment Control Plan and Details drawing (Appendix B).

**Foundations** – Foundations will be drilled piers, spread footings or mat type foundations. If drilled pier holes are unstable, steel casings may be employed to stabilize the sides. Installation will occur immediately after the auger is withdrawn, and casings will be removed using a vibratory extractor while concrete is being placed.

Some of the foundations for the control enclosure, PDC enclosures, and transformer oil containment will be excavated with a backhoe. Sheeting and shoring will be used to stabilize the sides of the foundation trench. Forms will be constructed on-site, incorporating rebar, followed by concrete installation.

Ready mix concrete will be placed in the drilled pier holes on the same date that the holes are drilled. It will be delivered by truck to each substation site. For the control enclosure, PDC enclosures, and transformer oil containment foundations, concrete will be poured once all the forms and rebar have been installed. The concrete will be delivered to the Project by truck, with numerous deliveries being required for these foundations.

**Below Grade Facilities** –Below grade facilities will consist of the grounding grid (grounding conductors and rods), PVC conduit, cable trench, and the 15 kV duct bank for the interconnections to distribution circuits. The underground 15 kV distribution circuits will enter the substation off Old Stratford Road and Pootatuck Place. Methods used for excavation, embedment and backfill for such below grade facilities have been previously described in this section.

**Crushed Rock Surfacing** –Portions of the substation site not otherwise occupied by equipment or buildings will be covered with a 6-inch layer of crushed rock or 3-inch layer of asphalt surfacing.

The surfacing will consist of crushed rock uniformly graded having a total compacted thickness of 6 inches. Compaction will be accomplished by at least two passes of road type vibratory compactor or pneumatic-tired roller.

After subgrade preparation, but prior to application of the crushed rock, the entire area to be surfaced will be treated with a weed eradicant and soil fumigant. A licensed herbicide applicator will complete this task. Inhibitors will be approved by UI and application will be

restricted to times when conditions will not cause drifting to areas that are not to be treated or are off-site.

**Fencing** – During construction, a 8-foot-tall chain-link fence will be installed to secure the site. This temporary construction fence will include gates that will be locked to secure the site.

For permanent security, a chain-link fence will be constructed around the substation. The fence will be 8 feet tall with 1 foot of barbed wire. Four, 20 feet wide gates will be installed to provide secure access to authorized personnel.

The temporary 8-foot-tall chain link fence will be removed after the installation of the permanent 8 feet tall with 1 foot of barbed wire fence is completed.

**Enclosures** – A new control enclosure and two PDC enclosures will be constructed at the Project. The control enclosure will be a structure with a footprint of approximately 28 feet by 65 feet (see Appendix A). The two PDC enclosures will be structures with a footprint of approximately 14.5 feet by 44 feet (see Appendix A) apiece.

The control enclosure and PDC enclosures will consist of a pre-manufactured, skid mounted assembly that will be set on the concrete foundation and bolted together in sections. The enclosures will be windowless, and have access doors at each end of the building.

All required electrical equipment, and heating, ventilating, and air conditioning equipment in the enclosures will be installed prior to delivery to site.

Enclosure walls will be painted light gray to match the color of the other substation equipment, with interior walls and ceilings painted off-white.

Construction of the enclosures is described on the attached drawings for the substation shown in Appendix A.

**Switchyard Structures, Bus and Equipment** –After the below grade facilities have been installed, the Project equipment will be set on the foundations. Insulators, bus, jumpers, and hardware will be installed to interconnect the equipment in a 115 kV tie bus configuration. Control wiring will be installed between the control building and equipment.

**Transformer Oil Containment** – The two 115/13.8 kV transformers to be installed will be surrounded by oil containment basins. The purpose of these basins will be to collect and contain transformer oil that may spill as a result of equipment failure. Each basin will be designed to contain all of the oil for the transformer installed within that basin, plus a 10 percent safety margin. Each oil containment basin will include two (2) Petro-Barrier systems in the base slab that allows collected water to be gravity drained from the pit. The Petro-Barrier will close in the event oil is detected to prevent discharge of oil. UI personnel will periodically perform a visual inspection of each containment basin to determine the presence of oil. If oil is present, it will be pumped through an oil/water separator before the water is discharged. Oil will be removed by a licensed contractor and disposed of according to state and federal regulations.

The location and construction of each oil containment basin is shown on drawings that are included in Appendix A.

### **Worksite Health and Safety Plan**

UI's contractors will develop a worksite Health and Safety Plan that will be strictly adhered to by the contractors. UI Employees and each construction contractor will be responsible for the safety and protection of all workers on-site and the public. During construction, UI employees and each contractor will protect all existing structures, features, utilities, and equipment designated to remain in place within or adjacent to the substation area.

The local streets adjacent to the substation site (i.e., Pootatuck Place and Old Stratford Road) will remain open during construction. If earthwork requires cutting and removal of street pavement, the opening will be covered with steel plates to permit access and traffic flow, and such openings will be temporarily resurfaced until final finished paving can be accomplished. Appropriate signs, barricades, and warning devices will be used on streets if construction and/or construction equipment encroaches on these public rights-of-way. If temporary lane closures are required, such closures will be coordinated with and approved by City of Shelton officials before closures are instituted.

### **Maintenance**

After construction, UI will implement its standard Operations/Maintenance Program for substations. The site will be periodically inspected for weed control and rodent damage to equipment. Transformer oil containment basins will be inspected monthly and cleaned as necessary and pavement will be swept on an as-needed basis. Snow will be removed from driveways as needed. Debris will be removed from the substation yard during inspections.

Areas surrounding the fenced substation will be maintained as appropriate. Planted landscape materials and ground cover will be watered if needed. Dead plantings will be replaced during the next appropriate growing season.

### **Construction Traffic**

Traffic during construction will generally enter and exit the site from Pootatuck Place. Equipment and material deliveries will be made by truck from Pootatuck Place.

Construction traffic will be at its peak prior to 7 AM and just after 5 PM when the construction crews are entering and leaving the site. Throughout the day, traffic will be sporadic as equipment and materials are received.

During the site clearing and grading phase of the Project, dump trucks, bulldozers, and other large vehicles will be prevalent.

During the installation of transmission lines into the substation, it may be necessary to close Old Stratford Road while conductors are being transferred to the new monopoles.

### **Hours of Construction**

Construction hours when active construction activities will typically take place are between 7 AM and 5 PM, Monday through Friday. In certain situations, such as during outages, the hours of construction will be increased to up to 24 hours a day, 7 days a week in order to minimize the total outage duration. However, it is anticipated this will only be needed

during the outage to cut-in the transmission lines to the substation scheduled in September 2014.

### **Site Security**

During construction work hours, all gates will remain unlocked to allow authorized personnel to enter and exit the substation. The gates will be locked at night and on weekends when work is not taking place. UI and its construction contractors will have the only keys to the gates. The construction contractor will be responsible for site security until the contractor turns the completed facility over to UI. The Project site will have a temporary 8 foot chain link fence and a permanent 8 foot chain link fence with 1 foot of barbed wire totally enclosing the area under construction.

### **Permits**

UI will obtain a permit from the USACE, along with associated approval from CT DEEP, to fill the small wetland on the substation site. Additional permits required for the construction of the Project may include:

- Building Permit for control enclosure and PDC enclosures
- Curb Cutting Permit

In addition to the above, for the construction of the Project, UI will submit a registration form to CT DEEP and comply with the terms of the CT DEEP's General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities (DEEP-WPED-GP-015).

### **Procedures for Notices and Reports**

The procedure governing notices of the beginning and completion of construction activities, and of any changes in the D&M Plan during construction activities, will be as follows:

***Advance Notice on Construction Activities*** – UI will provide the CSC, in writing, with a minimum of two weeks advance notice of the beginning of construction activities and the beginning of the installation of storm water management and oil containment devices at the Project site.

***Municipal Notification*** – UI will provide the City of Shelton, in writing, with a minimum of one week advance notice of the beginning of construction activities at the Project site.

***Landowner Notification*** – UI will notify each adjoining landowner, in writing, with a minimum of one week advance notice of the beginning of construction activities at the Project site.

***Notice of Completion*** – UI will provide the CSC with written notice of completion of construction activities once the work is completed.

***Modifications to D&M Plan*** – If any significant changes to the D&M Plan are required, UI will submit proposed changes to the CSC in writing. Upon Council approval of any such changes, UI will undertake actions to implement these changes. If any changes to the D&M Plan are required which are deemed by UI not to be significant, UI will notify the Council either by telephone or in writing of those changes and will undertake actions to implement these changes following such notification.



***Final Report*** – UI will provide the CSC with a final report for UI's substation construction phase of the project not later than 180 days after completion of all site construction. The final report will include, among other things, any significant changes to the D&M Plan that were required during the course of construction, drawings depicting the location of all buildings, structures, and conduits; and will provide the final cost of substation construction for the Project.

## SECTION 5 PROJECT SCHEDULE

The project schedule is presented in the following table.

<b>Activity</b>	<b>Estimated Start Date</b>	<b>Estimated Finish Date</b>
Mobilization of Construction Contractors	Jan 2014	Feb 2014
Site Clearing and Grading	Feb 2014	Mar 2014
Foundation Installation	Mar 2014	May 2014
Substation Equipment Construction	May 2014	Nov 2014
Testing and Commissioning	Nov 2014	Mar 2014
Outage to Connect Substation to T-Lines	Mar 2015	Mar 2015
Substation Energized	June 2015	June 2015
Construction Complete	June 2015	June 2015

## **APPENDICES**

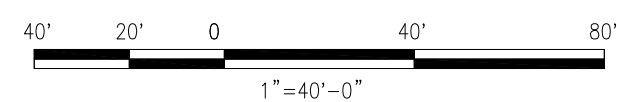
## APPENDIX A

### SUBSTATION DRAWINGS

DRAWING NUMBER	DRAWING TITLE
XXXXX-001	SHELTON SUBSTATION SITE PLAN
XXXXX-003	SHELTON SUBSTATION GRADING AND DRAINAGE – SITE KEY PLAN
XXXXX-004	SHELTON SUBSTATION GRADING AND DRAINAGE – SITE PLAN – AREA 1
XXXXX-005	SHELTON SUBSTATION GRADING AND DRAINAGE – SITE PLAN – AREA 2
XXXXX-007	SHELTON SUBSTATION GRADING AND DRAINAGE – SITE CATCH BASIN SCHEDULE AND DETAILS
XXXXX-009	SHELTON SUBSTATION GRADING AND DRAINAGE – SITE DETAILS
XXXXX-011	SHELTON SUBSTATION TOPOGRAPHIC MAP
XXXXX-012	SHELTON SUBSTATION SITE MAP
XXXXX-014	SHELTON SUBSTATION SURFACING AND FENCING – SITE PLAN
XXXXX-015	SHELTON SUBSTATION UNDERGROUND UTILITIES – SITE PLAN
XXXXX-016	SHELTON SUBSTATION ROADS AND PARKING – SITE PLAN
XXXXX-017	SHELTON SUBSTATION UNDERGROUND UTILITIES – SITE UNDERGROUND UTILITIES DETAILS
XXXXX-030	SHELTON SUBSTATION SITE PLANTING PLAN
XXXXX-400	SHELTON SUBSTATION EQUIPMENT PLAN
XXXXX-401SH1	SHELTON SUBSTATION SUBSTATION SECTION 1
XXXXX-401SH2	SHELTON SUBSTATION SUBSTATION SECTIONS
XXXXX-401SH3	SHELTON SUBSTATION SUBSTATION SECTIONS
XXXXX-410	SHELTON SUBSTATION FOUNDATION PLAN
XXXXX-801	SHELTON SUBSTATION DEMOLITION PLAN
XXXXX-805	SHELTON SUBSTATION SUBSTATION CONSTRUCTION FACILITIES PLAN

# PRELIMINARY

NOT TO BE USED FOR CONSTRUCTION



PROJECT NO. 178262

DRAWN	JDB	3	05/20/2013	ISSUED FOR D&M PLAN	JDB	-	ALL	-
DESIGNED	JDB	2	01/10/2013	PRE-FILE TESTIMONY ISSUE	JDB	-	ALL	-
APPROVED	ALL	0	11/19/2012	ADDENDUM - CONTROL BUILDING RE-LOCATION	JDB	-	ALL	-
CHECKED	-	0	05/2012	MCF REVIEW ISSUE	JDB	-	ALL	-

No	Date	Revision	By	Chkd.	Engr.	Supv.



Drawn	Date 01/27/12	Scale: 1:40
Design Engr.	Design Supv.	Design Supv.

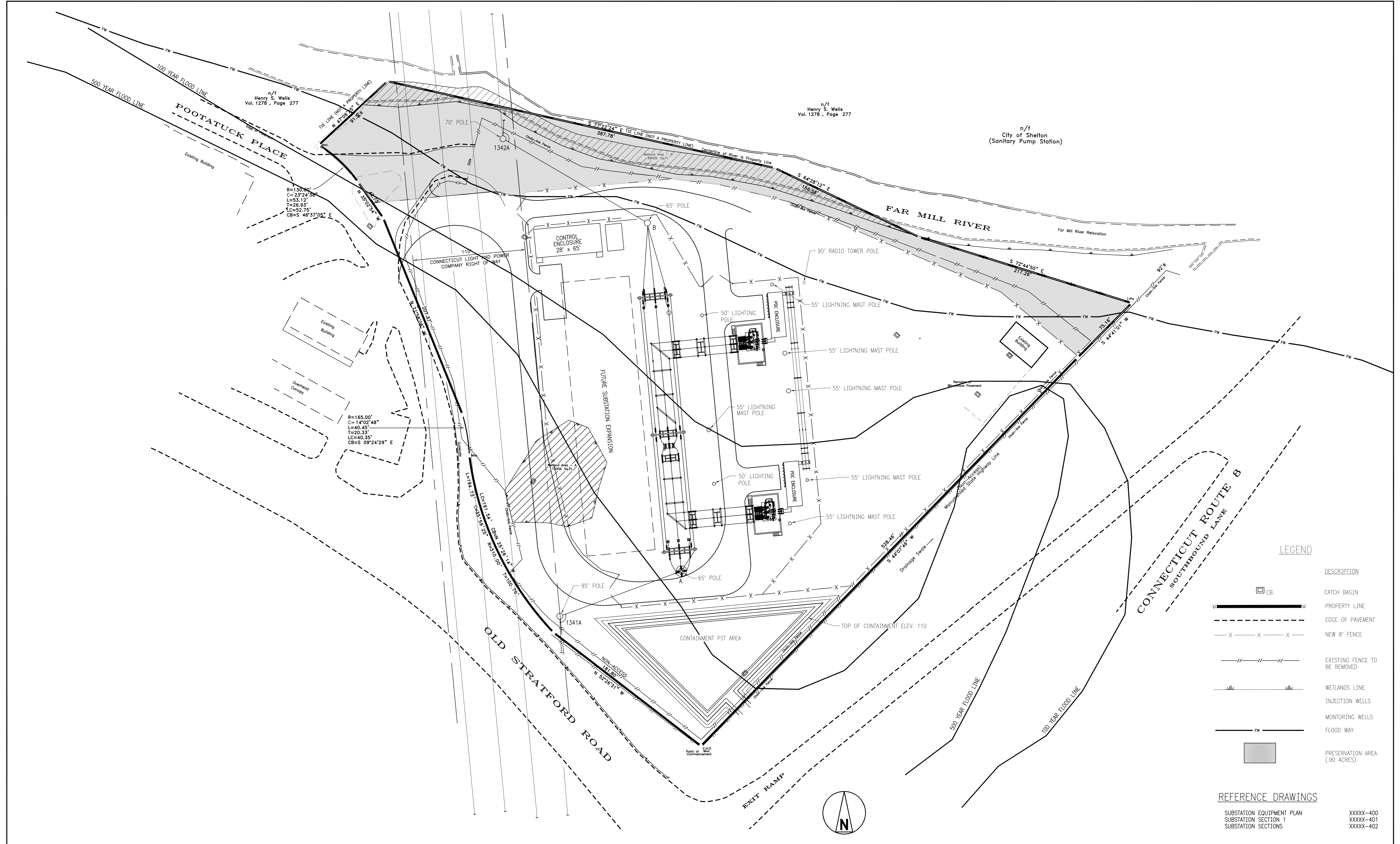
SITE PLAN		
SHELTON SUBSTATION		
CAD FILE NAME	SEQUENCE No.	DRAWING NUMBER
-	-	XXXXX-001

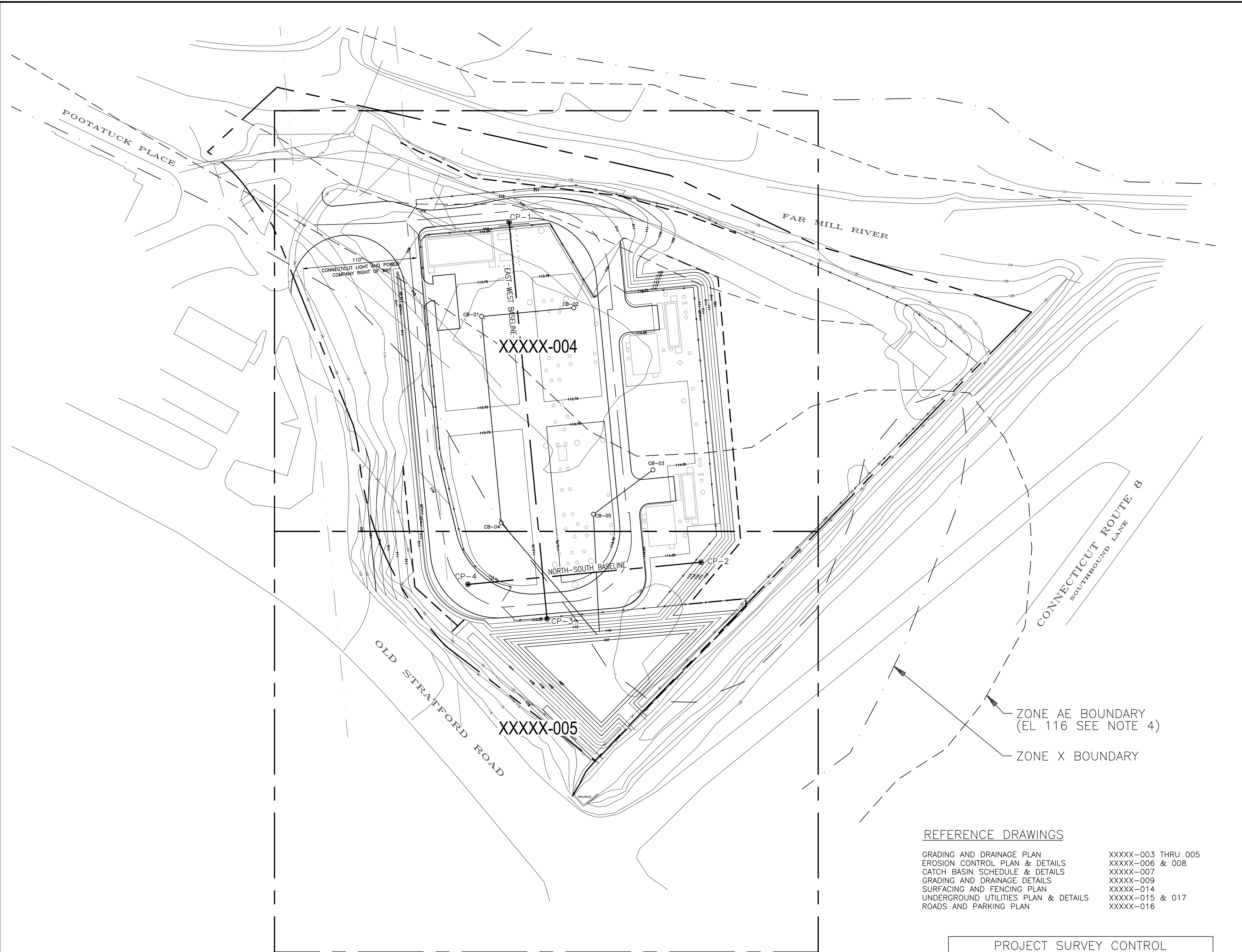
**LEGEND**

DESCRIPTION	DESCRIPTION
CB.	CATCH BASIN
U	PROPERTY LINE
- - - - -	EDGE OF PAVEMENT
- X - X - X -	NEW 8' FENCE
- - - - -	EXISTING FENCE TO BE REMOVED
wavy line	WETLANDS LINE
vertical line with dot	INJECTION WELLS
vertical line with circle	MONITORING WELLS
FW	FLOOD WAY
shaded box	PRESERVATION AREA (.90 ACRES)

**REFERENCE DRAWINGS**

SUBSTATION EQUIPMENT PLAN	XXXXX-400
SUBSTATION SECTION 1	XXXXX-401
SUBSTATION SECTIONS	XXXXX-402





GENERAL NOTES

1. GENERAL NOTES APPLICABLE TO ALL GRADING AND DRAINAGE AND EROSION CONTROL DRAWINGS.
2. SEE DRAWING XXXX-006 FOR EROSION CONTROL PLANS.
3. SEE DRAWING XXXX-007 FOR CATCH BASIN SCHEDULE AND DETAILS AND XXXX-009 FOR GRADING AND DRAINAGE DETAILS.
4. COORDINATES SHOWN ARE BASED ON CONNECTICUT STATE PLANE NAD27 FEET. VERTICAL DATUM IS NGVD 29.
5. GRADE SHALL SLOPE UNIFORMLY BETWEEN FINISH SPOT ELEVATIONS AND CONTOURS SHOWN ON THE PLANS.
6. A SMOOTH VERTICAL TRANSITION SHALL BE PROVIDED AT ROAD INTERSECTIONS.
7. SLOPES SHALL BE 3(H):1(V) OR FLATTER, UNLESS NOTED OTHERWISE.
8. THE CONTRACTOR IS RESPONSIBLE FOR TYING FINISHED CONTOURS INTO EXISTING CONTOURS IN AREAS WHERE THERE IS INSUFFICIENT SURVEY DATA OF THE EXISTING GRADE.
9. EXISTING CONTOURS AND SPOT ELEVATIONS ARE BASED ON THE 10/29/2009 ALTA SURVEY PRODUCED BY NOWAKOWSKI, O'BYMACHOW, KANE AND ASSOCIATES.
10. SPOT ELEVATIONS AND CONTOURS ON THESE DRAWINGS ARE TOP OF FINISHED GRADE. SUBTRACT FINISH SURFACING MATERIAL THICKNESS TO OBTAIN TOP OF SUBGRADE.
11. ALL AREAS OUTSIDE OF THE SUBSTATION THAT ARE DISTURBED DURING CONSTRUCTION SHOULD BE RESTORED TO THEIR PRE-CONSTRUCTION CONDITIONS, AND STABILIZED UNLESS NOTED OTHERWISE.
12. SLOPE GRADE TO DRAIN IN DIRECTION OF FLOW ARROWS.
13. THE FINISHED GRADE SHALL BE SET 6 INCHES BELOW TOP OF CONCRETE UNLESS NOTED OTHERWISE. FINISHED GRADE SHOULD SLOPE AWAY FROM THE STRUCTURE AT A MINIMUM SLOPE OF 1%.
14. SEE DWG XXXX-004 FOR CONTROL MONUMENT DETAIL.

LEGEND APPLICABLE TO ALL GRADING AND DRAINAGE DRAWINGS

---	ZONE X BOUNDARY		ASPHALT SURFACING
- - -	ZONE AE BOUNDARY		AGGREGATE SURFACING
---	PROPERTY LINE		REINFORCED CONCRETE
- · - · -	LIMIT OF RIGHT-OF-WAY		EARTH
x x x x	SUBSTATION FENCE		RIPRAP
99	NEW CONTOUR		SAND/BEDDING MAT'L
○	CATCH BASIN		GRASS
○	NEW STORM WATER SYSTEM		WETLANDS
—○—	NEW CULVERT		CONCRETE RETEMENT BLOCK
← · · ·	DITCH/SWALE FLOW INDICATOR		
←	GRADE SURFACE FLOW INDICATOR		
123.45 +	NEW SPOT ELEVATION		
●	SURVEY CONTROL MONUMENT		
x x x x	EXISTING FENCE		
99	EXISTING CONTOUR		
①	SECTION OR DETAIL NUMBER		
③3000	DRAWING DESIGNATION NUMBER		
↘	SLOPE INDICATOR		
	ROCK CHECK DAM		

ABBREVIATIONS APPLICABLE TO ALL GRADING AND DRAINAGE DRAWINGS

A	- ARC LENGTH	LS	- LIFT STATION
AGG	- AGGREGATE	LTR	- LATER
APPROX	- APPROXIMATE	MATL	- MATERIAL
ASPH	- ASPHALT	MH	- MANHOLE
AVG	- AVERAGE	MSL	- MEAN SEA LEVEL
BLDNG	- BUILDING	MW	- MONITORING WELL
B/MH	- BOTTOM OF MANHOLE ELEVATION	N	- NORTH
BOD	- BOTTOM OF ELECTRICAL DUCT BANK	NO.	- NUMBER
BOP	- BOTTOM OF PIPE	NTS	- NOT TO SCALE
BU	- BELL-UP	OD	- OUTSIDE DIAMETER
CHDPE	- CORRUGATED HIGH DENSITY POLYETHYLENE PIPE	OWS	- OIL/WATER SEPARATOR
CJ	- CONTRACTION JOINT	PC	- POINT OF CURVATURE
CL	- CENTERLINE	PE	- PLAIN END
CMP	- CORRUGATED METAL PIPE	PI	- POINT OF INTERSECTION
CO	- CLEANOUT	PL	- PROPERTY LINE
D	- DEGREE OF CURVE	PLCS	- PLACES
Δ	- DELTA ANGLE OF HORIZONTAL CURVE	PRC	- POINT OF REVERSE CURVE
DI	- DUCTILE IRON	PT	- POINT OF TANGENT
DIA	- DIAMETER	PVC	- POINT OF VERTICAL CURVE
DIM	- DIMENSION	PVI	- POINT OF VERTICAL INTERSECTION
DWG	- DRAWING	PVT	- POINT OF VERTICAL TANGENT
E	- EAST	R	- RADIUS
EA	- EACH	RCP	- REINFORCED CONCRETE PIPE
EF	- EACH FACE	RD	- ROOF DRAIN
EGP	- EDGE OF PAVEMENT	RED	- REDUCER
EGS	- EDGE OF SHOULDER	REQD	- REQUIRED
EHH	- ELECTRICAL HANDHOLE	REV	- REVISION
EL	- ELEVATION	R/W	- RIGHT-OF-WAY
EJ	- EXPANSION JOINT	S	- SOUTH
EW	- EACH WAY	SE	- SUPERELEVATION
EXP	- EXPANSION	SIM	- SIMILAR
FD	- FLOOR DRAIN	STA	- STATION
FDN	- FOUNDATION	T	- TANGENT LENGTH
FF	- FINISHED FLOOR	TMH	- TOP OF MANHOLE
FG	- FINISHED GRADE	TOC	- TOP OF CONCRETE
FRP	- FIBER REINFORCED PIPE	TOG	- TOP OF GRATING
FT	- FOOT	TOP	- TOP OF PAVEMENT
HC	- HANDICAPPED	TYP	- TYPICAL
HDPE	- HIGH DENSITY POLYETHYLENE	UNO	- UNLESS NOTED OTHERWISE
HVCM	- HORIZ & VERT CONTROL MONUMENT	DS	- DESIGN SPEED
HP	- HIGH POINT	VERT	- VERTICAL
ID	- INSIDE DIAMETER	W	- WEST
IN	- INCH	W/	- WITH
INV	- INVERT	W/O	- WITHOUT
L	- LENGTH	WP	- WORK POINT
LC	- LENGTH OF VERTICAL CURVE		

REFERENCE DRAWINGS

GRADING AND DRAINAGE PLAN	XXXXX-003 THRU 005
EROSION CONTROL PLAN & DETAILS	XXXXX-006 & 008
CATCH BASIN SCHEDULE & DETAILS	XXXXX-007
GRADING AND DRAINAGE DETAILS	XXXXX-009
SURFACING AND FENCING PLAN	XXXXX-014
UNDERGROUND UTILITIES PLAN & DETAILS	XXXXX-015 & 017
ROADS AND PARKING PLAN	XXXXX-016

PROJECT SURVEY CONTROL			
CONTROL MONUMENT LOCATIONS			
MONUMENT NO.	STATE PLANE COORDINATES		ELEVATION
	NORTHING	EASTING	
CP-1	161726.67	498688.61	-
CP-2	161398.68	498725.63	-
CP-3	161344.03	498725.13	-
CP-4	161377.30	498648.85	-

HARS3259 01/31/13 17:00:14-1 18.0s (LMS Tech)

**PRELIMINARY**  
NOT TO BE USED FOR CONSTRUCTION



PROJECT NO. 178262	
DRAWN	RMG
DESIGNED	SMR
APPROVED	ALL
CHECKED	-

No.	Date	Revision	By	Chkd.	Engr.	Supv.
3	05/20/13	ISSUED FOR D&M PLAN	RRH	-	SMR	-
2	04/19/13	ISSUED FOR D&M PLAN	RRH	-	SMR	-
1	01/10/13	PRE-FILE TESTIMONY ISSUE	RRH	-	SMR	-
0	04/30/12	MCF REVIEW ISSUE	RMG	-	SMR	-

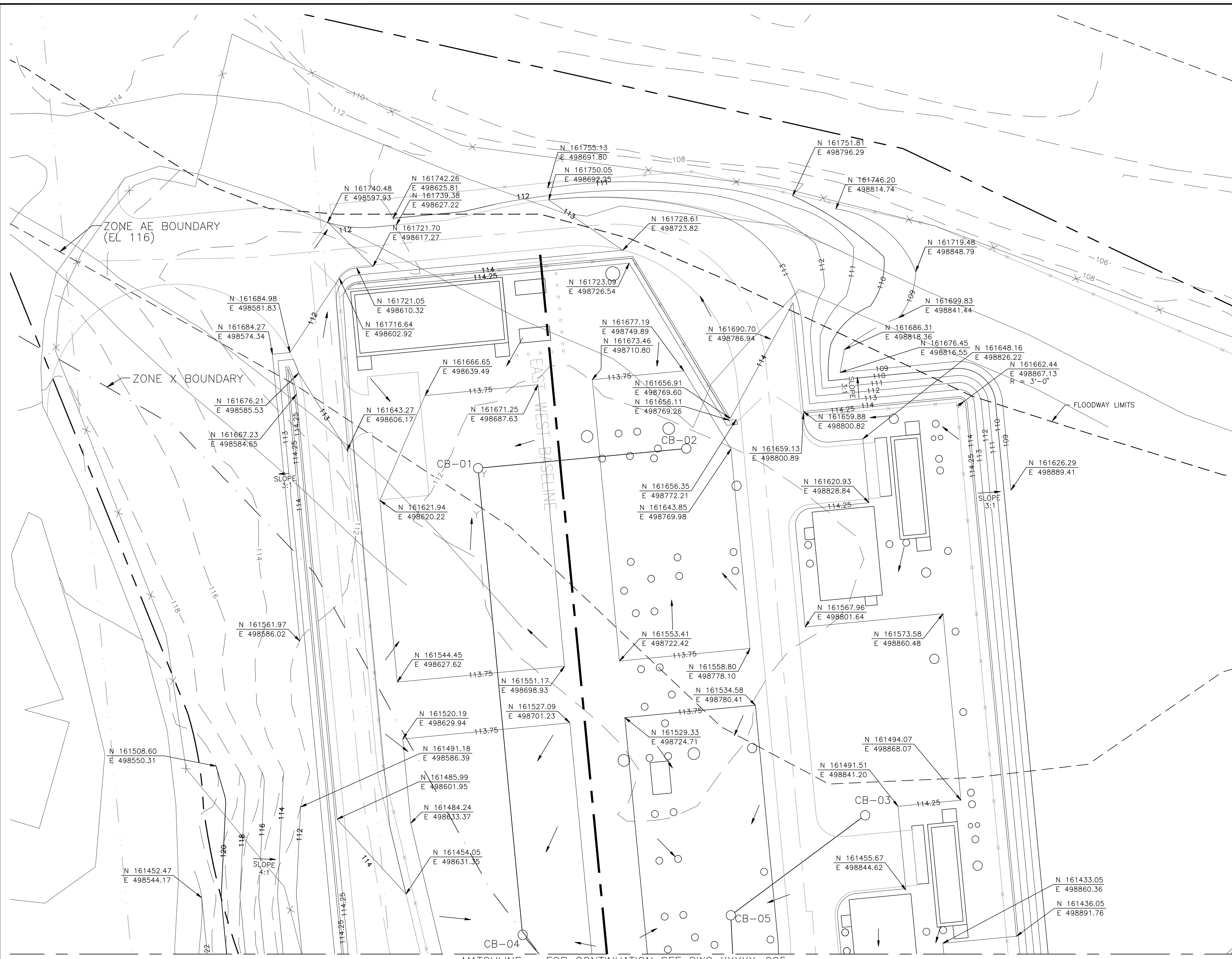
The United Illuminating Company

Drawn	RMG	Date	04/30/12	Scale:	1:50
Chkd.	-	Design Engr.	SMR	Design Supv.	-

GRADING AND DRAINAGE - SITE KEY PLAN SHELTON SUBSTATION		
CAD FILE NAME	SEQUENCE No.	DRAWING NUMBER
-	-	XXXXX-003

NOTES

1. SEE DWG XXXX-003 FOR GENERAL NOTES, KEY PLAN AND ABBREVIATIONS.

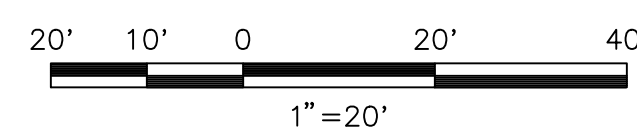
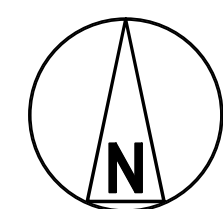


REFERENCE DRAWINGS

GRADING AND DRAINAGE PLAN	XXXX-003 THRU 005
EROSION CONTROL PLAN & DETAILS	XXXX-006 & 008
CATCH BASIN SCHEDULE & DETAILS	XXXX-007
GRADING AND DRAINAGE DETAILS	XXXX-009
SURFACING AND FENCING PLAN	XXXX-014
UNDERGROUND UTILITIES PLAN & DETAILS	XXXX-015 & 017
ROADS AND PARKING PLAN	XXXX-016

**PRELIMINARY**

NOT TO BE USED FOR CONSTRUCTION



MATCHLINE - FOR CONTINUATION SEE DWG XXXX-005



PROJECT NO. 178262

Drawn	RMG	Date	Revision	By	Chkd.	Engr.	Supv.
3	05/20/13	ISSUED FOR D&M PLAN		RRH	-	SMR	-
2	04/19/13	ISSUED FOR D&M PLAN		RRH	-	SMR	-
1	01/10/13	PRE-FILE TESTIMONY ISSUE		RRH	-	SMR	-
0	04/30/12	MCF REVIEW ISSUE		RMG	-	SMR	-

Drawn	RMG	Date	04/30/12	Scale:	1:20
Chkd.	-	Design Engr.	SMR	Design Supv.	-

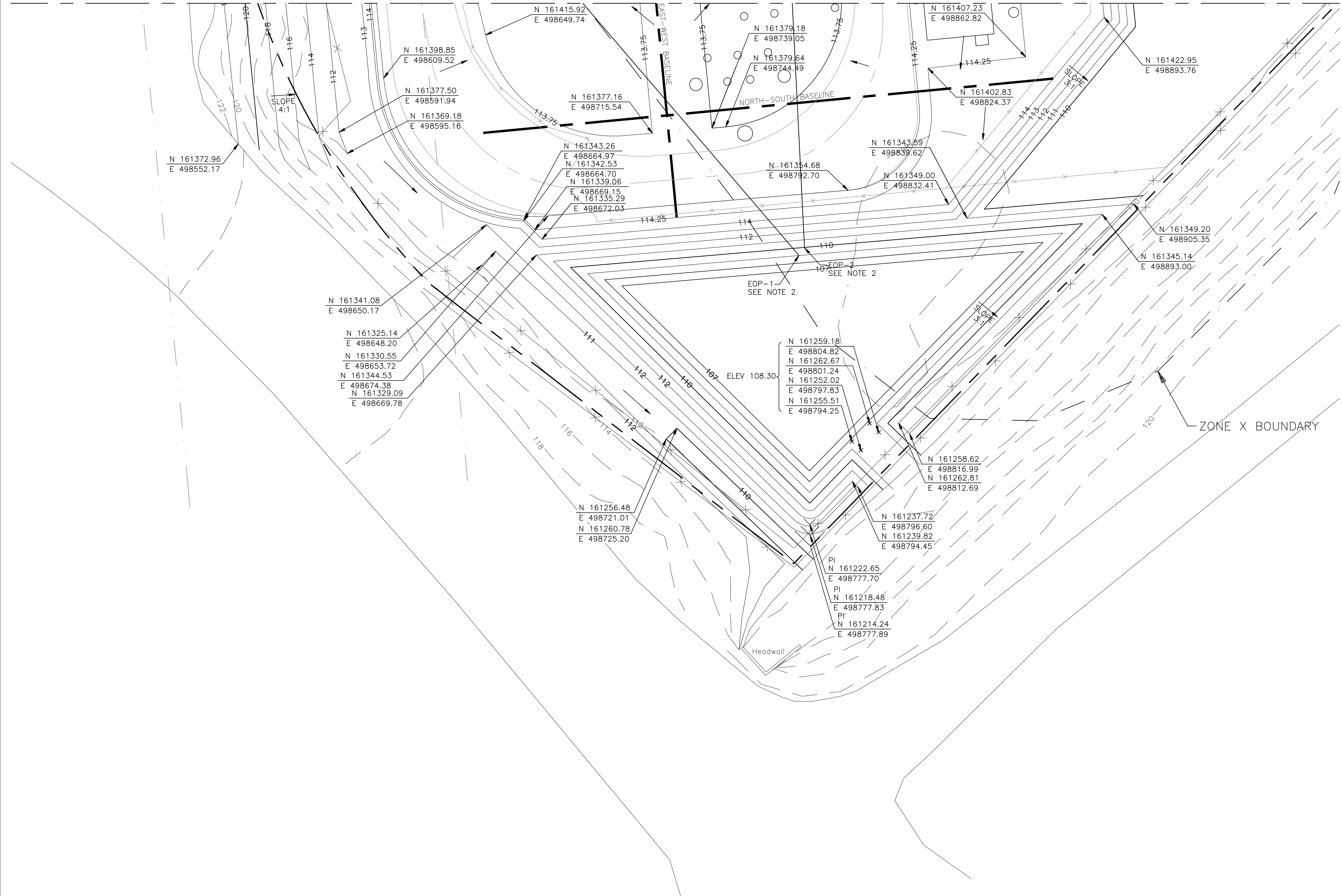
GRADING AND DRAINAGE - SITE PLAN - AREA 1  
SHELTON SUBSTATION

CAD FILE NAME	SEQUENCE No.	DRAWING NUMBER
-	-	XXXXX-004

NOTES

1. SEE DWG XXXX-003 FOR GENERAL NOTES, KEY PLAN AND ABBREVIATIONS.

MATCHLINE - FOR CONTINUATION SEE DWG XXXX-004



N 161341.08  
E 498650.17

N 161325.14  
E 498648.20

N 161330.55  
E 498653.72

N 161344.53  
E 498674.38

N 161329.09  
E 498669.78

N 161259.18  
E 498804.82

N 161262.67  
E 498801.24

N 161252.02  
E 498797.83

N 161255.51  
E 498794.25

PI  
N 161222.65  
E 498777.70

PI  
N 161218.48  
E 498777.83

PI  
N 161214.24  
E 498777.89

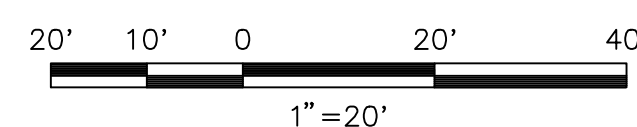
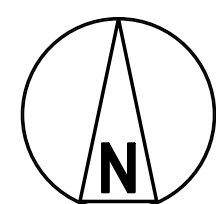
ZONE X BOUNDARY

REFERENCE DRAWINGS

GRADING AND DRAINAGE PLAN	XXXX-003 THRU 005
EROSION CONTROL PLAN & DETAILS	XXXX-006 & 008
CATCH BASIN SCHEDULE & DETAILS	XXXX-007
GRADING AND DRAINAGE DETAILS	XXXX-009
SURFACING AND FENCING PLAN	XXXX-014
UNDERGROUND UTILITIES PLAN & DETAILS	XXXX-015 & 017
ROADS AND PARKING PLAN	XXXX-016

**PRELIMINARY**

NOT TO BE USED FOR CONSTRUCTION



PROJECT NO. 178262

Drawn	RMG	Date	Revision	By	Chkd.	Engr.	Supv.
3	RMG	05/20/13	ISSUED FOR D&M PLAN	RRH	-	SMR	-
2	SMR	04/19/13	ISSUED FOR D&M PLAN	RRH	-	SMR	-
1	SMR	01/10/13	PRE-FILE TESTIMONY ISSUE	RRH	-	SMR	-
0	SMR	04/30/12	MCF REVIEW ISSUE	RMG	-	SMR	-



GRADING AND DRAINAGE - SITE  
PLAN - AREA 2  
SHELTON SUBSTATION

Drawn: RMG Date: 04/30/12 Scale: 1:20  
Chkd.: - Design Engr.: SMR Design Supv.: -

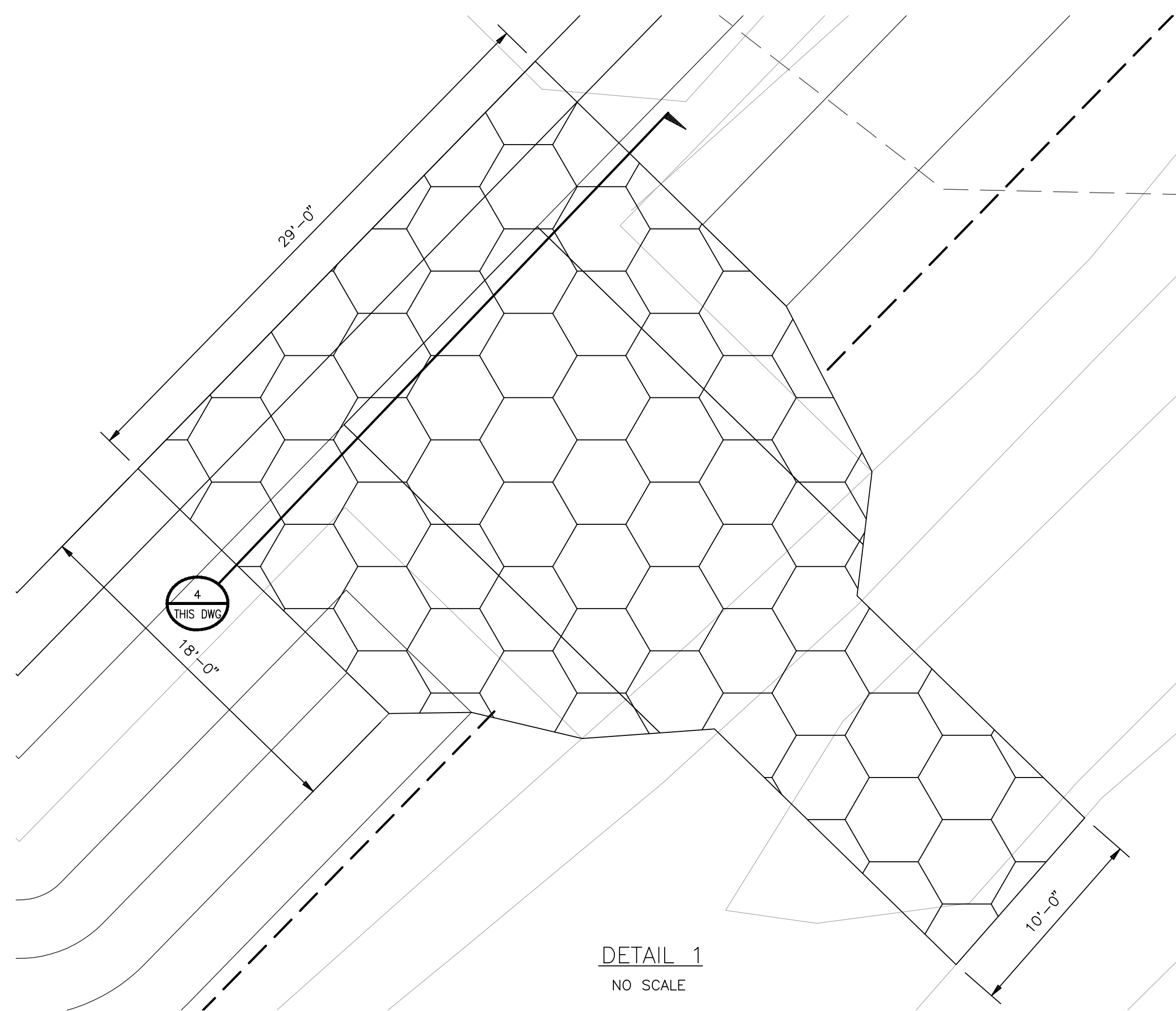
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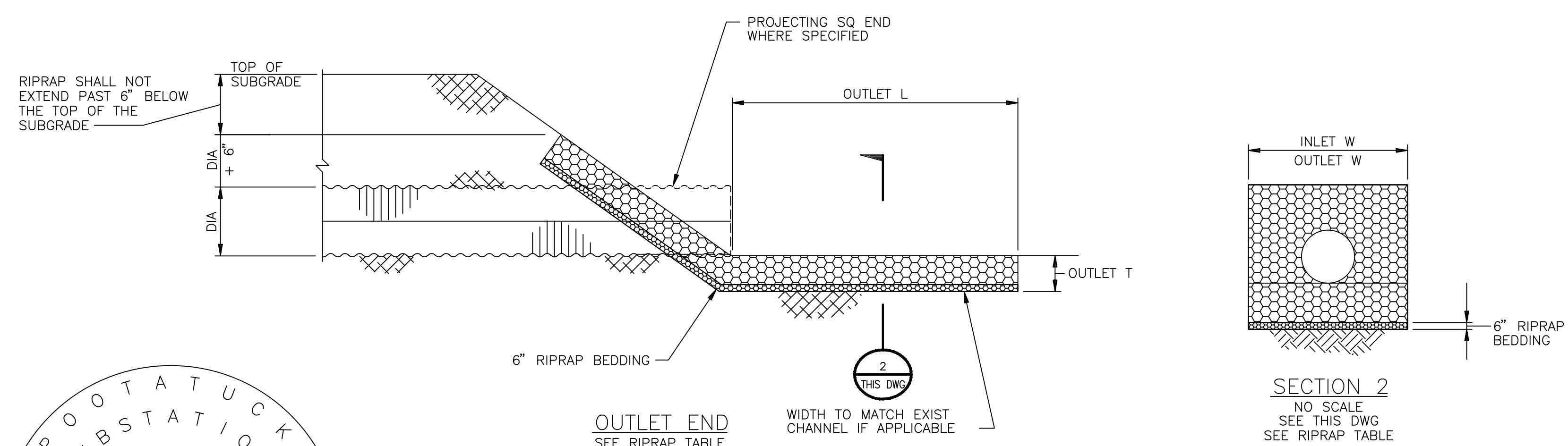
NOTES

- SEE DWG XXXX-003 FOR GENERAL NOTES, KEY PLAN AND ABBREVIATIONS.
- INSTALLATION OF CONCRETE REVETMENT BLOCK SHALL BE IN ACCORDANCE WITH MANUFACTURER'S STANDARDS.
- CAPS PROVIDED FOR SURVEY MONUMENTS SHALL BE ALL BRASS CONSTRUCTION, DOMED, 3-1/4" DIAMETER (MINIMUM), AND STAMPED AS INDICATED. THE COORDINATES AND ELEVATION OF THE MONUMENT, BASED ON THE PLANT GRID SYSTEM AND ELEVATION DATUM, SHALL BE STAMPED INTO THE CAP AFTER IT HAS BEEN SET AND THE INFORMATION FIELD VERIFIED. CAPS SHALL BE MODEL C/M-HS-3-1/4B AS MANUFACTURED BY "MARK-IT" (800-323-4578) OR MODEL C35DB AS MANUFACTURED BY BERTSEN INTERNATIONAL (800-356-7388). OTHER MANUFACTURERS' PRODUCTS MAY BE USED IF APPROVED IN ADVANCE BY THE COMPANY.

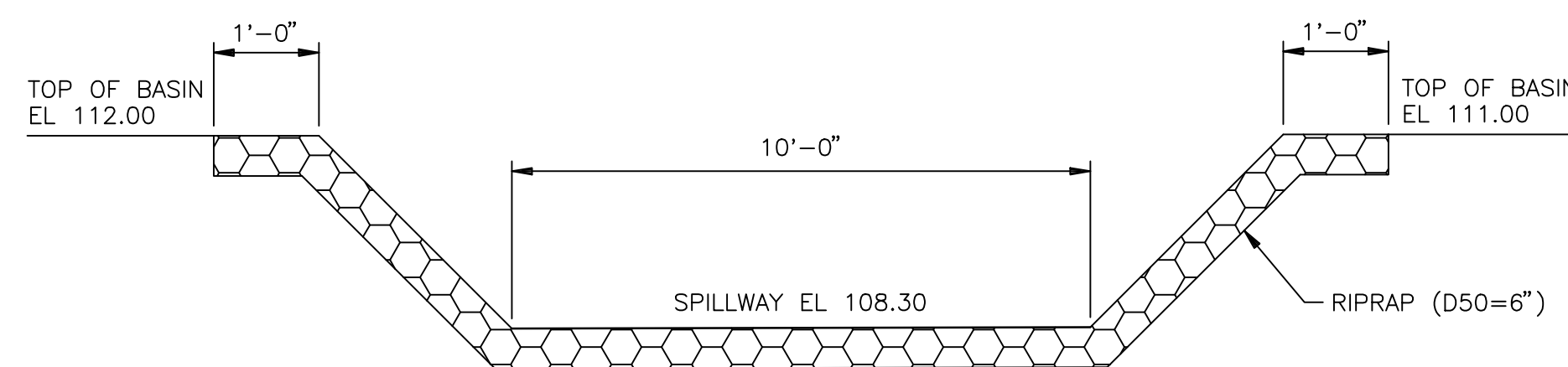


DETAIL 1  
NO SCALE

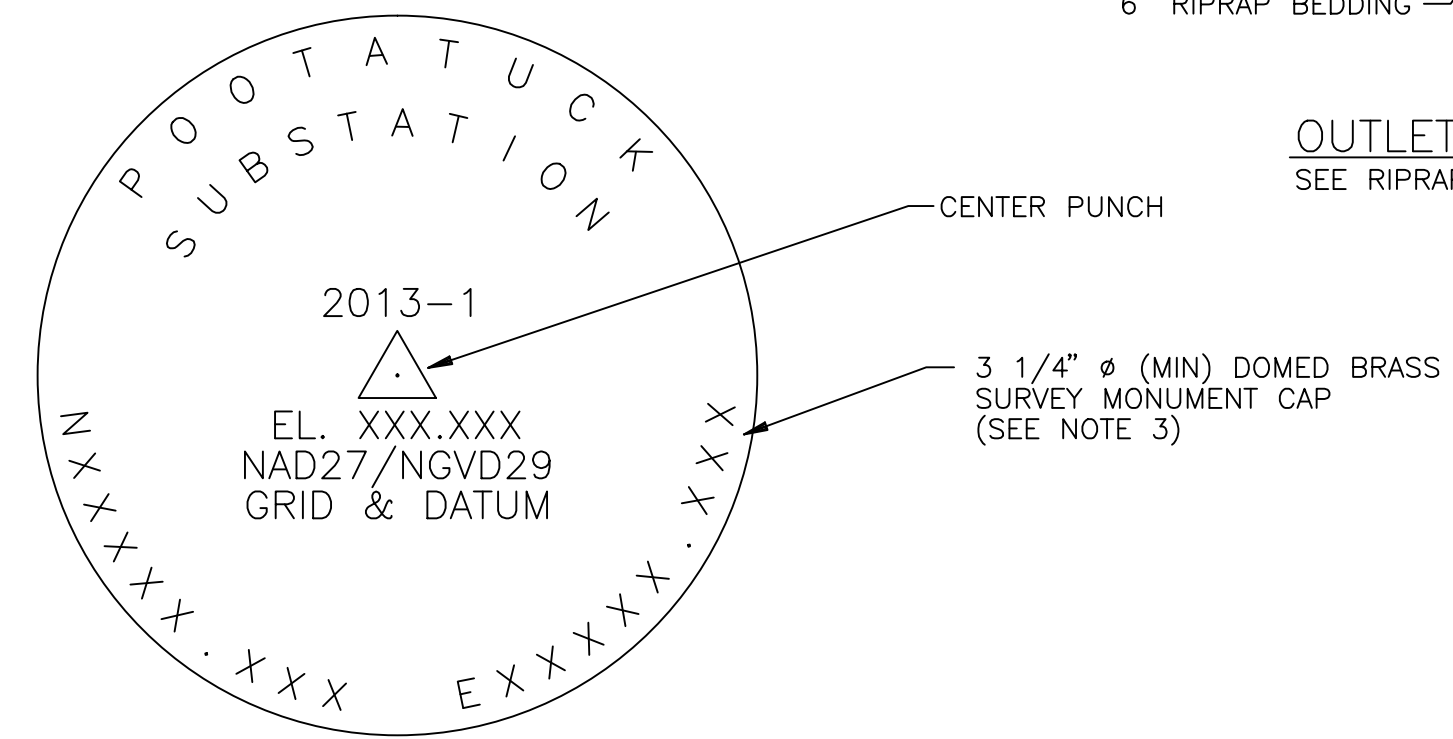
CULVERT NO.	CENTERLINE COORDINATES				LENGTH	INLET INV ELEVATION	OUTLET INV ELEVATION	END TYPE	PIPE DIAMETER	NUMBER OF BARRELS	PIPE MATERIAL	REMARKS
	INLET END		OUTLET END									
	NORTH	EAST	NORTH	EAST								
EOP-1	-	-	161328.94	498773.37	142.00	-	107.70	PROJECTING	18	1	-	OUTLET TO INFILTRATION BASIN
EOP-2	-	-	161331.86	498775.59	113.25	-	108.60	PROJECTING	12	1	-	OUTLET TO INFILTRATION BASIN



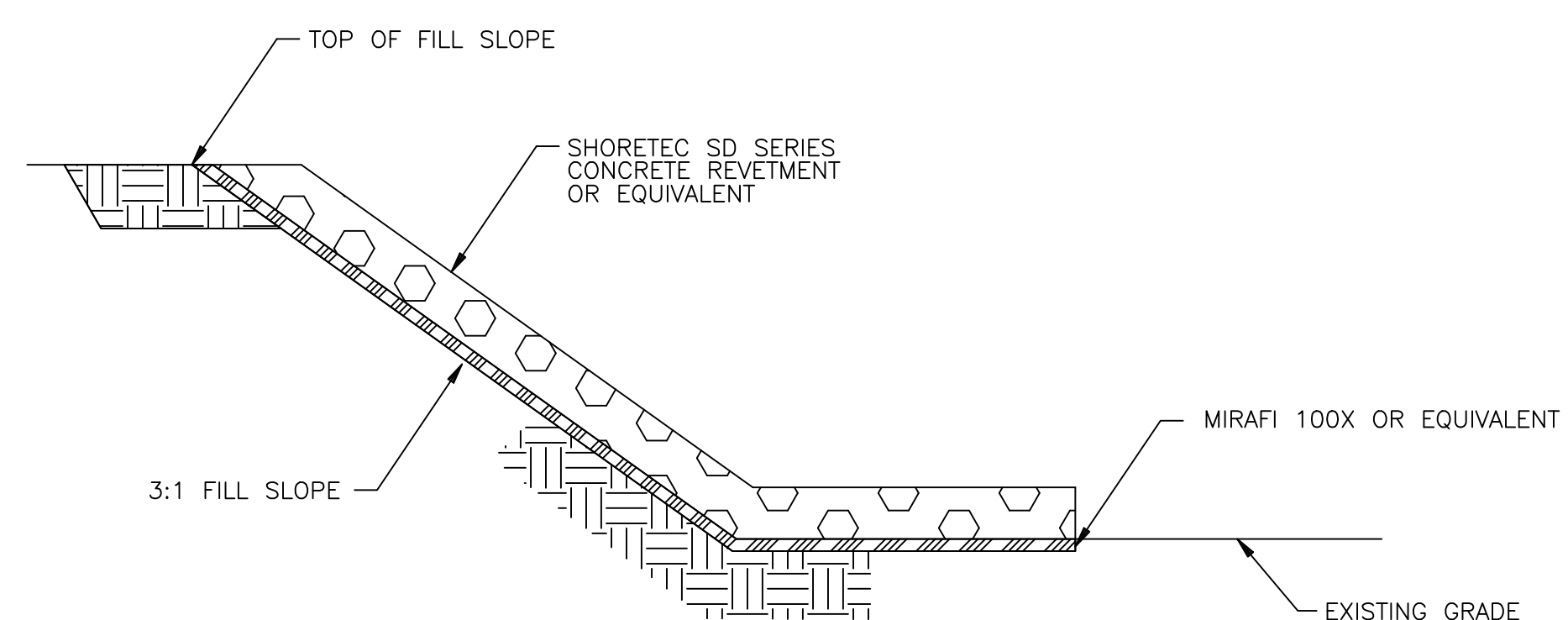
TYPICAL CULVERT RIPRAP  
NO SCALE



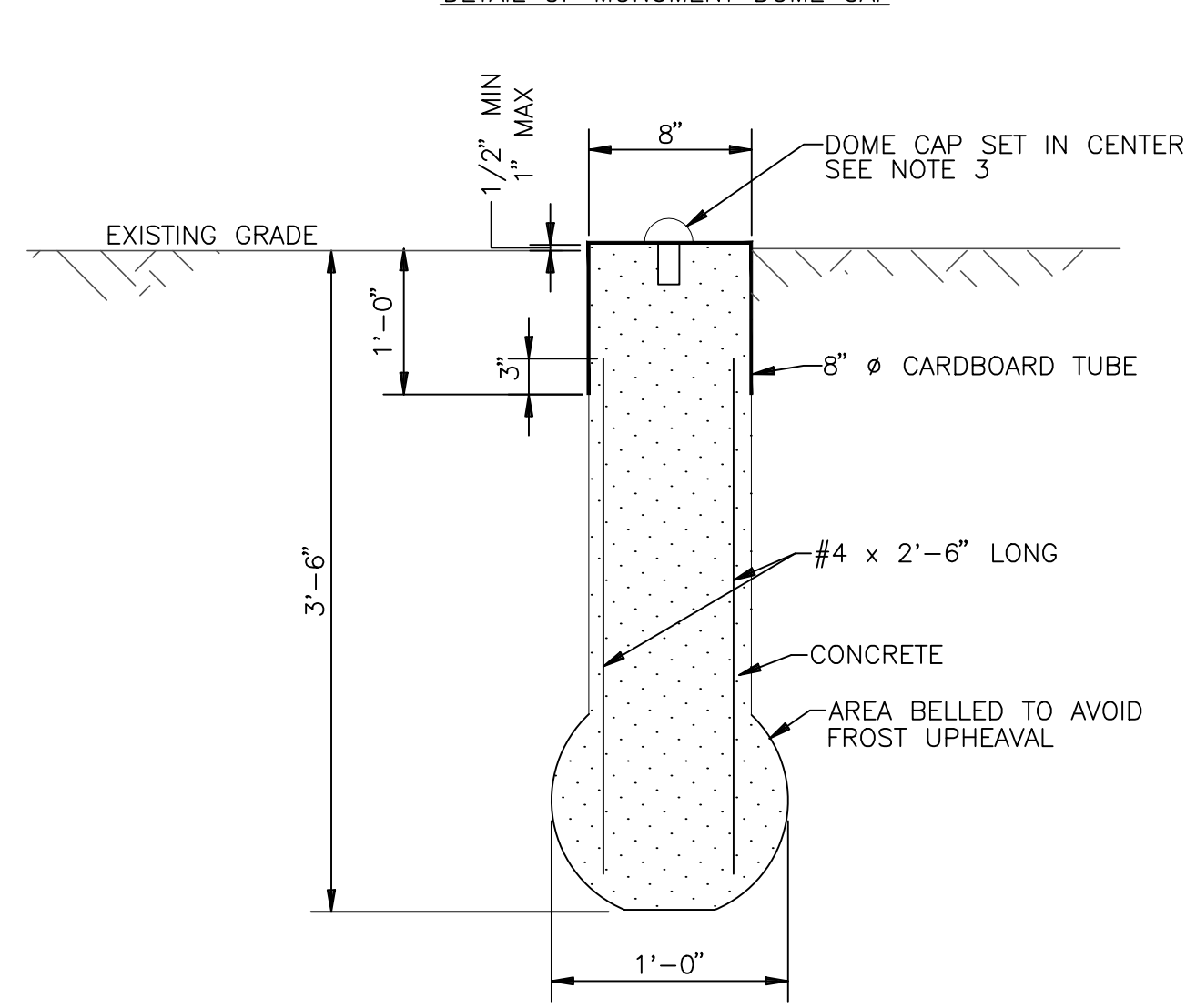
SECTION 4  
NO SCALE



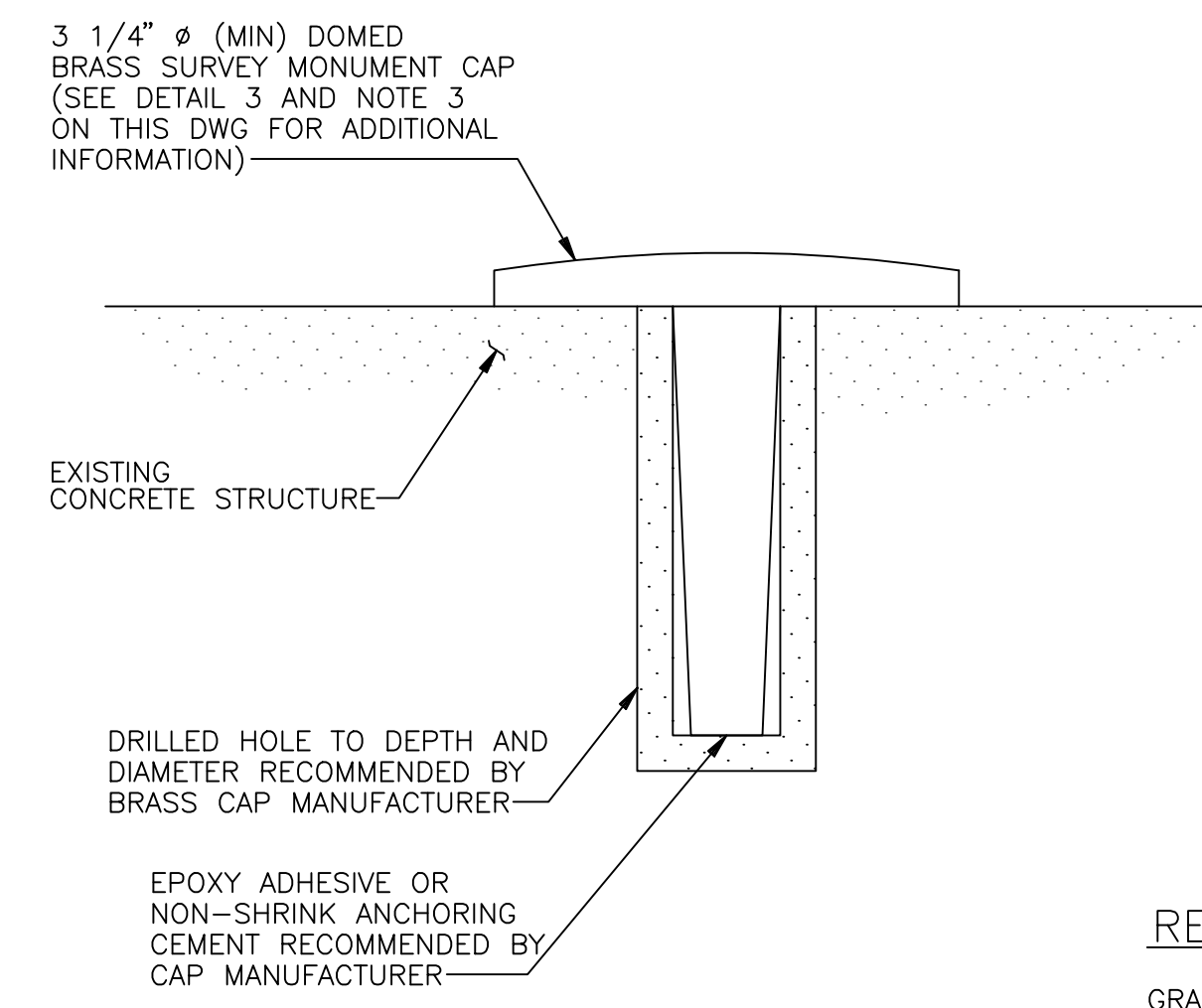
DETAIL OF MONUMENT DOME CAP



TYPICAL CONCRETE REVETMENT BLOCK  
NO SCALE  
SEE DWG 25252-006  
SEE NOTE 2



DETAIL 3  
NO SCALE



DETAIL 5  
NO SCALE

REFERENCE DRAWINGS

GRADING AND DRAINAGE PLAN	XXXXX-003 THRU 005
EROSION CONTROL PLAN & DETAILS	XXXXX-006 & 008
CATCH BASIN SCHEDULE & DETAILS	XXXXX-007
GRADING AND DRAINAGE DETAILS	XXXXX-009
SURFACING AND FENCING PLAN	XXXXX-014
UNDERGROUND UTILITIES PLAN & DETAILS	XXXXX-015 & 017
ROADS AND PARKING PLAN	XXXXX-016

**PRELIMINARY**  
NOT TO BE USED FOR CONSTRUCTION

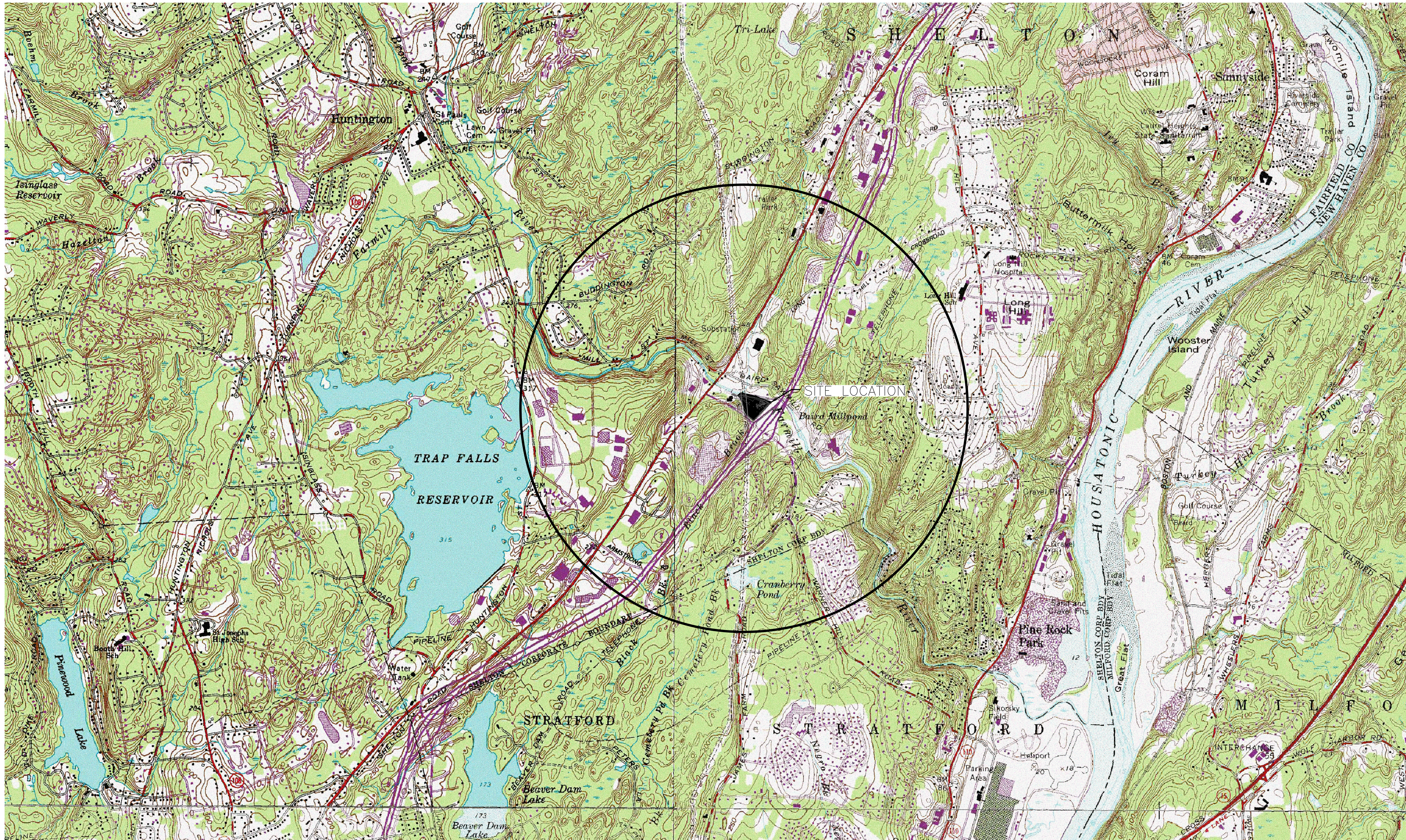
<b>BLACK &amp; VEATCH</b> Building a world of difference®		PROJECT NO. 178262	
DRAWN	RMG	3	05/20/13 ISSUED FOR D&M PLAN
DESIGNED	SMR	2	04/19/13 ISSUED FOR D&M PLAN
APPROVED	-	1	01/10/13 PRE-FILE TESTIMONY ISSUE
CHECKED	-	0	04/30/12 MCF REVIEW ISSUE
		No	Date Revision

The United Illuminating Company

Drawn	RMG	Date	04/30/12	Scale:	-
Chkd.	-	Design Engr.	SMR	Design Supv.	-

GRADING AND DRAINAGE - SITE DETAILS SHELTON SUBSTATION		
CAD FILE NAME	SEQUENCE No.	DRAWING NUMBER
-	-	XXXXX-009

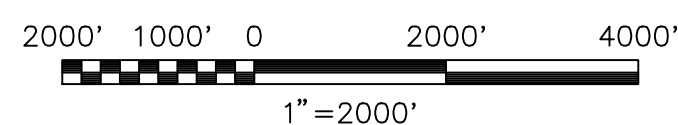
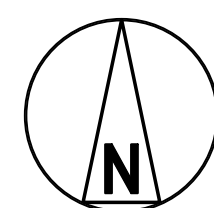
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HARS3259 04/10/13 09:06:56-1 18.0s (LMS Tech)

**PRELIMINARY**

NOT TO BE USED FOR CONSTRUCTION



PROJECT NO. 178262

DRAWN	AET
DESIGNED	JJB
APPROVED	-
CHECKED	-

0	04/19/13	ISSUED FOR D&M PLAN	RRH	-	SMR	-
No	Date	Revision	By	Chkd.	Engr.	Supv.



The United Illuminating Company  
157 Church St. New Haven, CT 06506

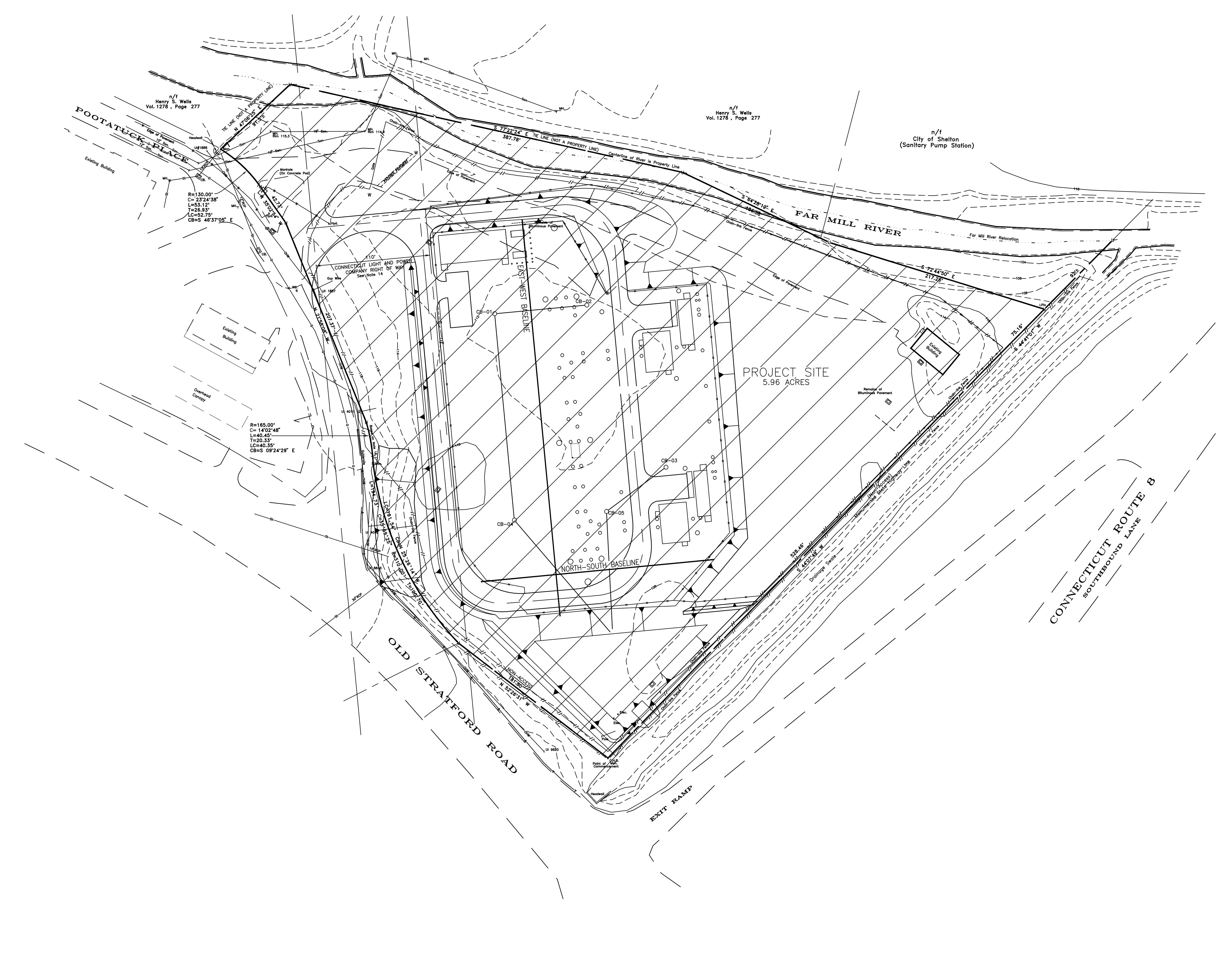
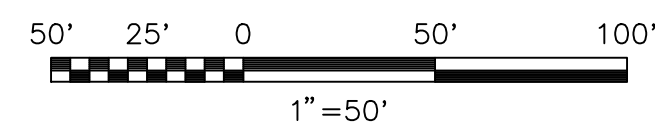
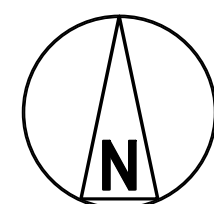
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Chkd.	-	Design Engr.	-	Design Supv.	-

TOPOGRAPHIC MAP  
SHELTON SUBSTATION

CAD FILE NAME	SEQUENCE No.	DRAWING NUMBER
-	-	XXXXX-011

SH07213 ACAD 01/24/13 11:39:31=1 16.1s (LMS Tech)

**PRELIMINARY**  
NOT TO BE USED FOR CONSTRUCTION



PROXIMITY OF LOCAL AMENITIES TO THE SITE	
SCHOOLS AND DAYCARE CENTER:	
SCHOOL:	0.20 MI
(PUMPKIN PRESCHOOL OF SHELTON)	
DAYCARE:	0.65 MI
(APPLE TREE DAY CARE AND PRESCHOOL CENTER)	
HOSPITALS:	
	25.3 MI
(THE HOSPITAL OF CENTRAL CONNECTICUT)	
GROUP HOMES:	
	3.00 MI
(HOME INSTEAD SENIOR CARE OF TRUMBULL)	
FORESTS AND PARKS:	
PARK:	0.70 MI
(FAR MILL PARK)	
RECREATIONAL AREAS:	
	1.20 MI
(TRAP FALLS RESERVOIR)	
SEISMIC AREAS:	
SEISMIC DESIGN CATEGORY B	
SCENIC AREAS:	
	3.20 MI
(SHELTON REVERFRONT/HOUSATONIC RIVER)	
HISTORIC AREAS:	
	2.00 MI
(HUNTINGTON CENTER HISTORIC DISTRICT)	
PUBLIC WATER SUPPLIES:	
	250 FT
HUNTING OR WILDLIFE MANAGEMENT AREAS:	
	4.00 MI
(CENTENNIAL WATERSHED SF SMALL GAME AREA)	
EXISTING TRANSMISSION LINES:	
CL&P 115KV LINE	
CIRCUIT 1560	
CIRCUIT 1570	
CIRCUIT 1580	
CIRCUIT 1590 (DEAD CIRCUIT)	

	<b>BLACK &amp; VEATCH</b>
PROJECT NO.	174811
DRAWN	AET
DESIGNED	JJB
APPROVED	-
CHECKED	-

No.	Date	Revision	By	Chkd.	Engr.	Supv.
0	04/19/13	ISSUED FOR D&M PLAN	RRH	-	SMR	-

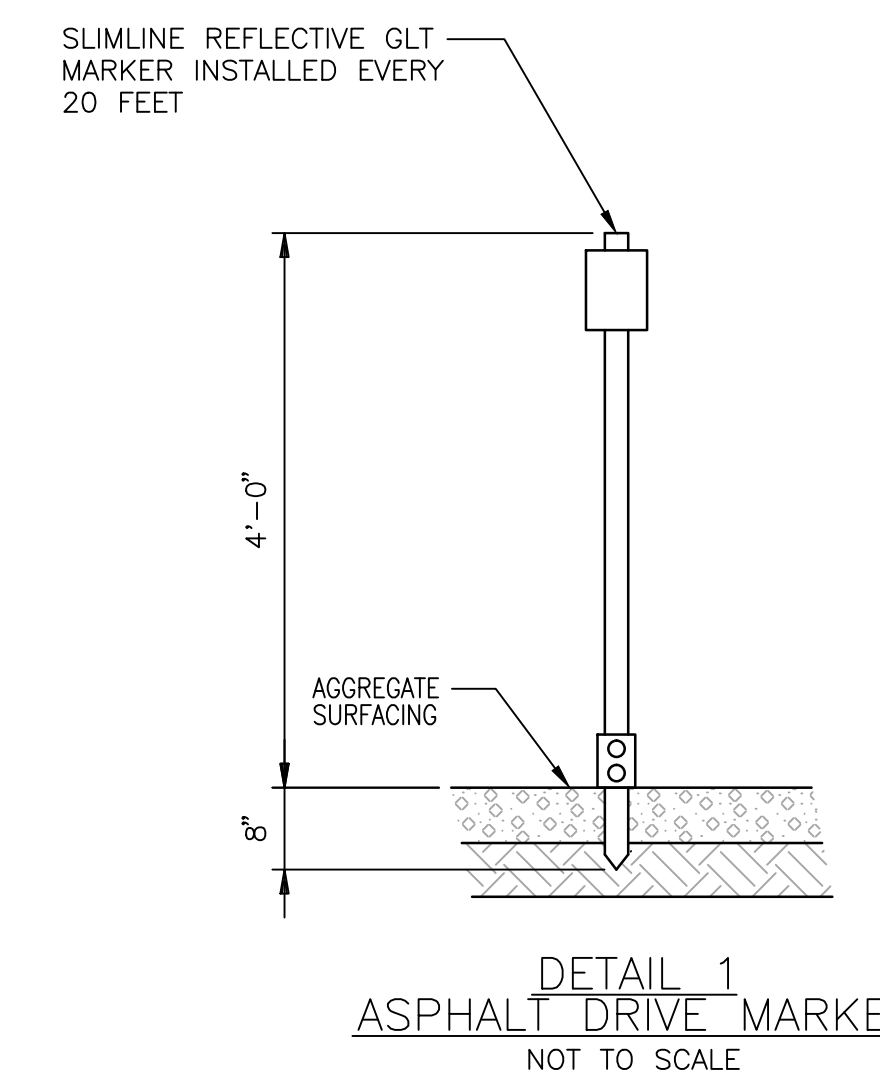
**The United Illuminating Company**  
157 Church St. New Haven, Ct. 06506

Drawn	AET	Date	10/FEB/12	Scale:	1:50
Chkd.	-	Design Engr.	-	Design Supv.	-

<b>SITE MAP SHELTON SUBSTATION</b>		
CAD FILE NAME	SEQUENCE No.	DRAWING NUMBER
-	-	XXXXX-012

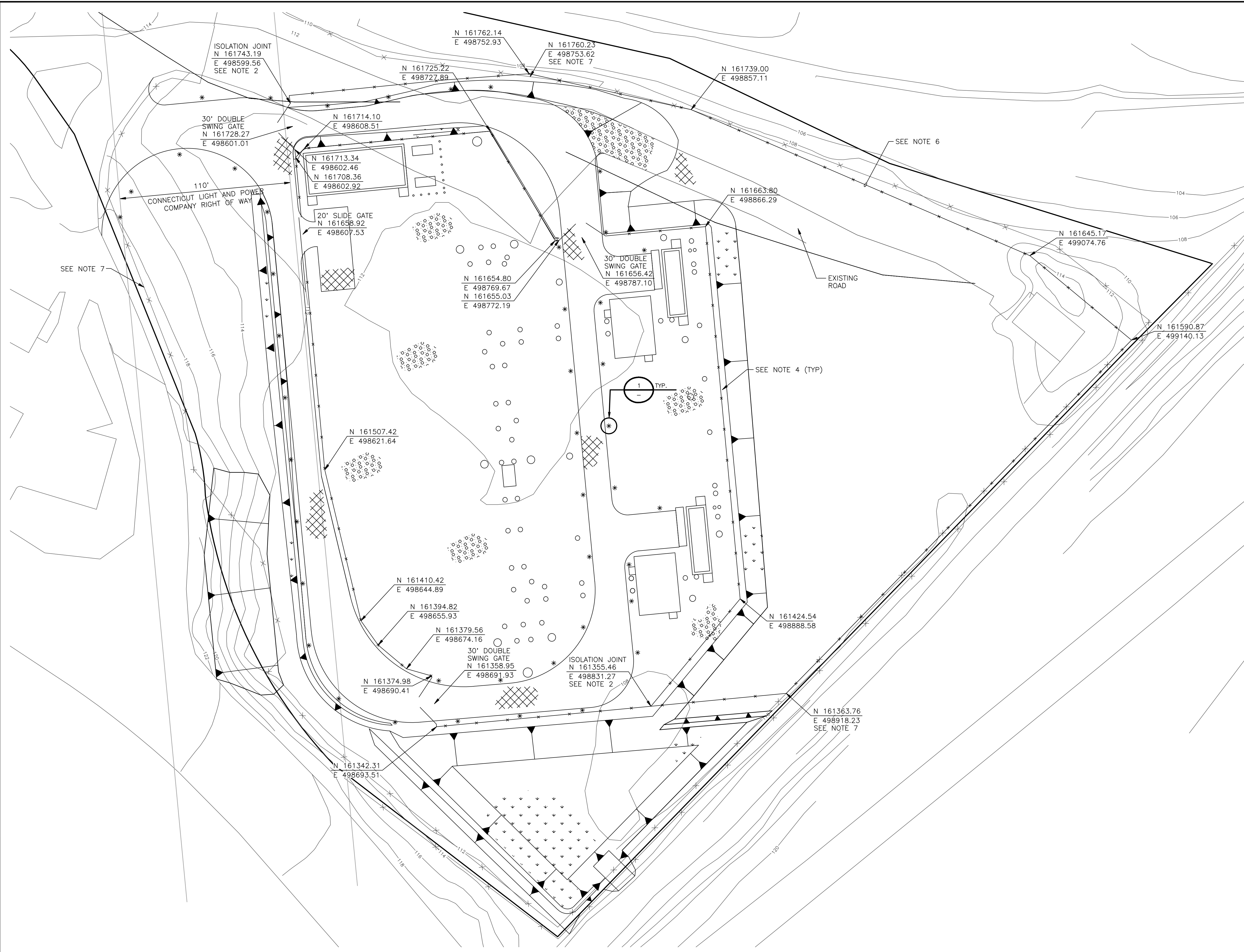
NOTES

1. SEE DWG XXXX-003 FOR GENERAL NOTES, KEY PLAN AND ABBREVIATIONS.
2. SEE DWG XXXX-435 FOR FENCING DETAILS. SEE SECTION C FOR ISOLATION DETAIL.
3. SEE DWG XXXX-016 FOR ROAD INFORMATION AND ASPHALT AND CRUSHED ROCK SURFACING DETAILS.
4. CRUSHED ROCK SURFACING SHALL EXTEND OUTSIDE THE FENCE BY 3'-0".
5. CUT AND FILL SLOPES SHALL BE SEEDED.
6. SEE DWG XXXX-801 FOR EXISTING FENCE DEMOLITION INFORMATION.
7. EXISTING FENCE SHALL BE REPAIRED AND MAINTAINED TO INTERSECT NEW PERIMETER FENCE UNTIL CONSTRUCTION ACTIVITIES ARE COMPLETED.
8. REFER TO LANDSCAPING PLANS PROVIDED BY EXECUTIVE LANDSCAPING INC.



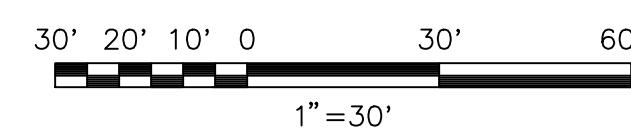
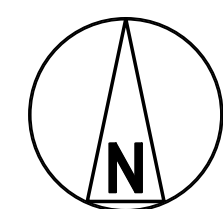
REFERENCE DRAWINGS

GRADING AND DRAINAGE PLAN	XXXXX-003 THRU 005
EROSION CONTROL PLAN & DETAILS	XXXXX-006 & 008
CATCH BASIN SCHEDULE & DETAILS	XXXXX-007
GRADING AND DRAINAGE DETAILS	XXXXX-009
SURFACING AND FENCING PLAN	XXXXX-014
UNDERGROUND UTILITIES PLAN & DETAILS	XXXXX-015 & 017
ROADS AND PARKING PLAN	XXXXX-016



**PRELIMINARY**

NOT TO BE USED FOR CONSTRUCTION



PROJECT NO. 178262

DRAWN	RMG						
DESIGNED	SMR	1	05/20/13	ISSUED FOR D&M PLAN	RRH	-	SMR ALL
APPROVED	ALL	0	04/19/13	ISSUED FOR D&M PLAN	RRH	-	SMR ALL
CHECKED	-	No	Date	Revision	By	Chkd.	Engr. Supv.



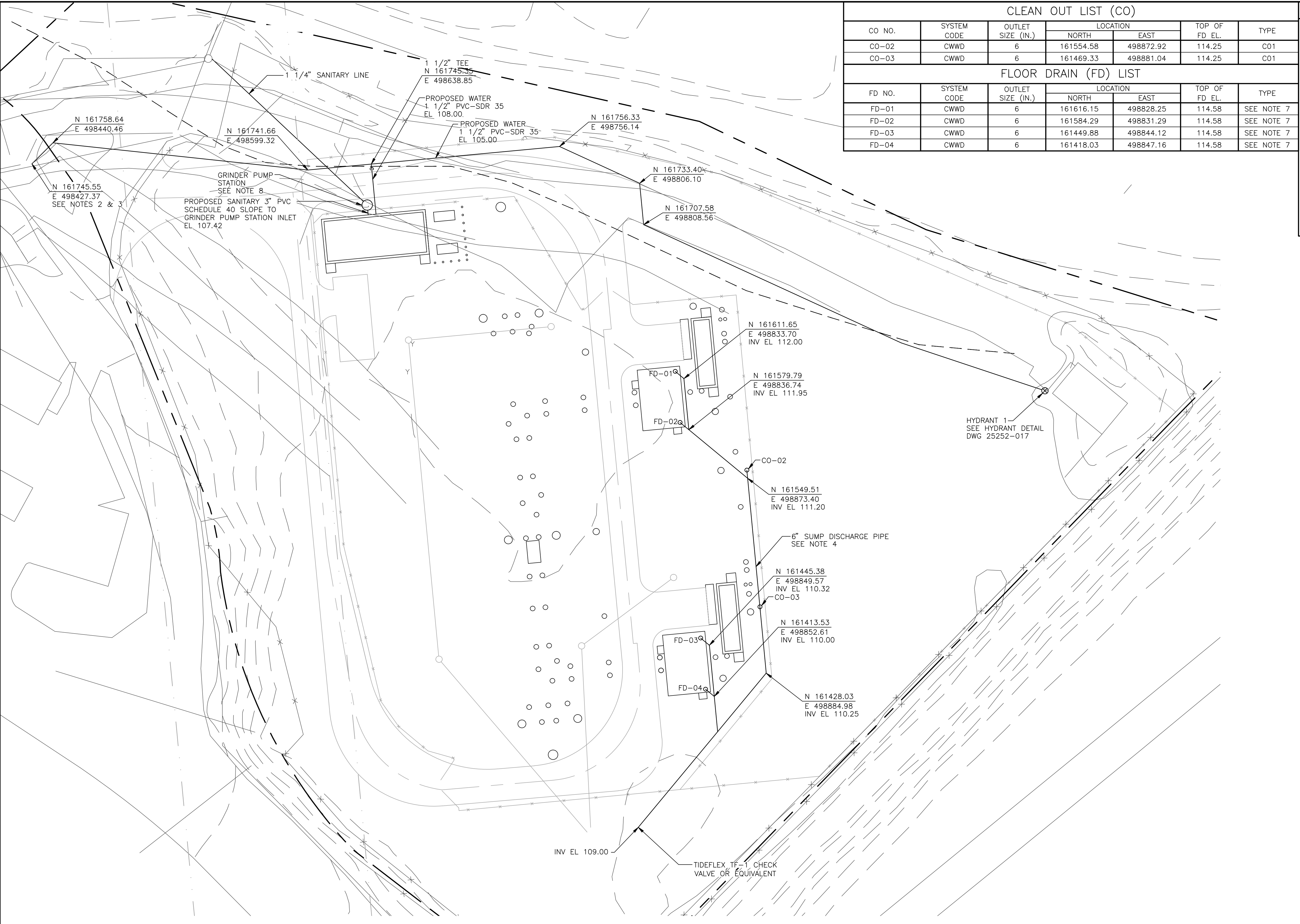
The United Illuminating Company

Drawn	RMG	Date	-	Scale:	1:30
Chkd.	-	Design Engr.	SMR	Design Supv.	-

SURFACING AND FENCING - SITE PLAN  
SHELTON SUBSTATION

CAD FILE NAME	SEQUENCE No.	DRAWING NUMBER
-	-	XXXXX-014

HAR53259 ACAD 05/06/13 08:31:26-1 18.0s (LMS Tech)



CLEAN OUT LIST (CO)						
CO NO.	SYSTEM CODE	OUTLET SIZE (IN.)	LOCATION		TOP OF FD EL.	TYPE
			NORTH	EAST		
CO-02	CWWD	6	161554.58	498872.92	114.25	CO1
CO-03	CWWD	6	161469.33	498881.04	114.25	CO1

FLOOR DRAIN (FD) LIST						
FD NO.	SYSTEM CODE	OUTLET SIZE (IN.)	LOCATION		TOP OF FD EL.	TYPE
			NORTH	EAST		
FD-01	CWWD	6	161616.15	498828.25	114.58	SEE NOTE 7
FD-02	CWWD	6	161584.29	498831.29	114.58	SEE NOTE 7
FD-03	CWWD	6	161449.88	498844.12	114.58	SEE NOTE 7
FD-04	CWWD	6	161418.03	498847.16	114.58	SEE NOTE 7

- NOTES**
- SEE DWG XXXXX-003 FOR GENERAL NOTES, KEY PLAN AND ABBREVIATIONS.
  - CONTRACTOR SHALL INSTALL WATER METER PIT PER AQUARIUM WATER COMPANY GUIDELINES. WATER LINE FROM WATER MAIN TO CURB LINE SHALL BE INSTALLED BY AQUARIUM WATER COMPANY. CONTRACTOR SHALL INSTALL WATER LINE FROM CURB LINE TO METER PIT.  
AQUARIUM WATER COMPANY CONTACT IS DAVID SANDOR.
  - TIE INTO EXISTING WATER LINE AND SANITARY SEWER LINE SHALL BE IN ACCORDANCE WITH GUIDELINES AND STANDARDS OF THE LOCAL AGENCY HAVING JURISDICTION.
  - SEE DWG XXXXX-412 FOR TRANSFORMER CONTAINMENT DRAIN INFORMATION.
  - SEE DWG XXXXX-017 FOR UNDERGROUND UTILITY DETAILS.
  - CONTRACTOR SHALL INSTALL TIDEFLEX TF-1 CHECK VALVE OR EQUIVALENT IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION SPECIFICATIONS.
  - SEE DWG XXXXX-412 FOR FLOOR DRAIN DETAILS.
  - SEE DWG XXXXX-017 FOR GRINDER PUMP STATION DETAILS AND INFORMATION. CONTRACTOR SHALL INSTALL 3"x4" REDUCER TO CONNECT GRAVITY LINE FROM BUILDING TO INLET OF GRINDER PUMP STATION.

**PRELIMINARY**  
NOT TO BE USED FOR CONSTRUCTION



<b>BLACK &amp; VEATCH</b> Building a world of difference	
PROJECT NO.	178262
DRAWN	RMG
DESIGNED	SMR
APPROVED	ALL
CHECKED	-

1	05/20/13	ISSUED FOR D&M PLAN	RRH	-	SMR	ALL
0	04/19/13	ISSUED FOR D&M PLAN	RRH	-	SMR	ALL
No	Date	Revision	By	Chkd.	Engr.	Supv.

**The United Illuminating Company**

Drawn	RMG	Date	-	Scale:	1:30
Chkd.	-	Design Engr.	SMR	Design Supv.	-

- REFERENCE DRAWINGS**
- |                                      |                    |
|--------------------------------------|--------------------|
| GRADING AND DRAINAGE PLAN            | XXXXX-003 THRU 005 |
| EROSION CONTROL PLAN & DETAILS       | XXXXX-006 & 008    |
| CATCH BASIN SCHEDULE & DETAILS       | XXXXX-007          |
| GRADING AND DRAINAGE DETAILS         | XXXXX-009          |
| SURFACING AND FENCING PLAN           | XXXXX-014          |
| UNDERGROUND UTILITIES PLAN & DETAILS | XXXXX-015 & 017    |
| ROADS AND PARKING PLAN               | XXXXX-016          |

UNDERGROUND UTILITIES - SITE PLAN  
SHELTON SUBSTATION

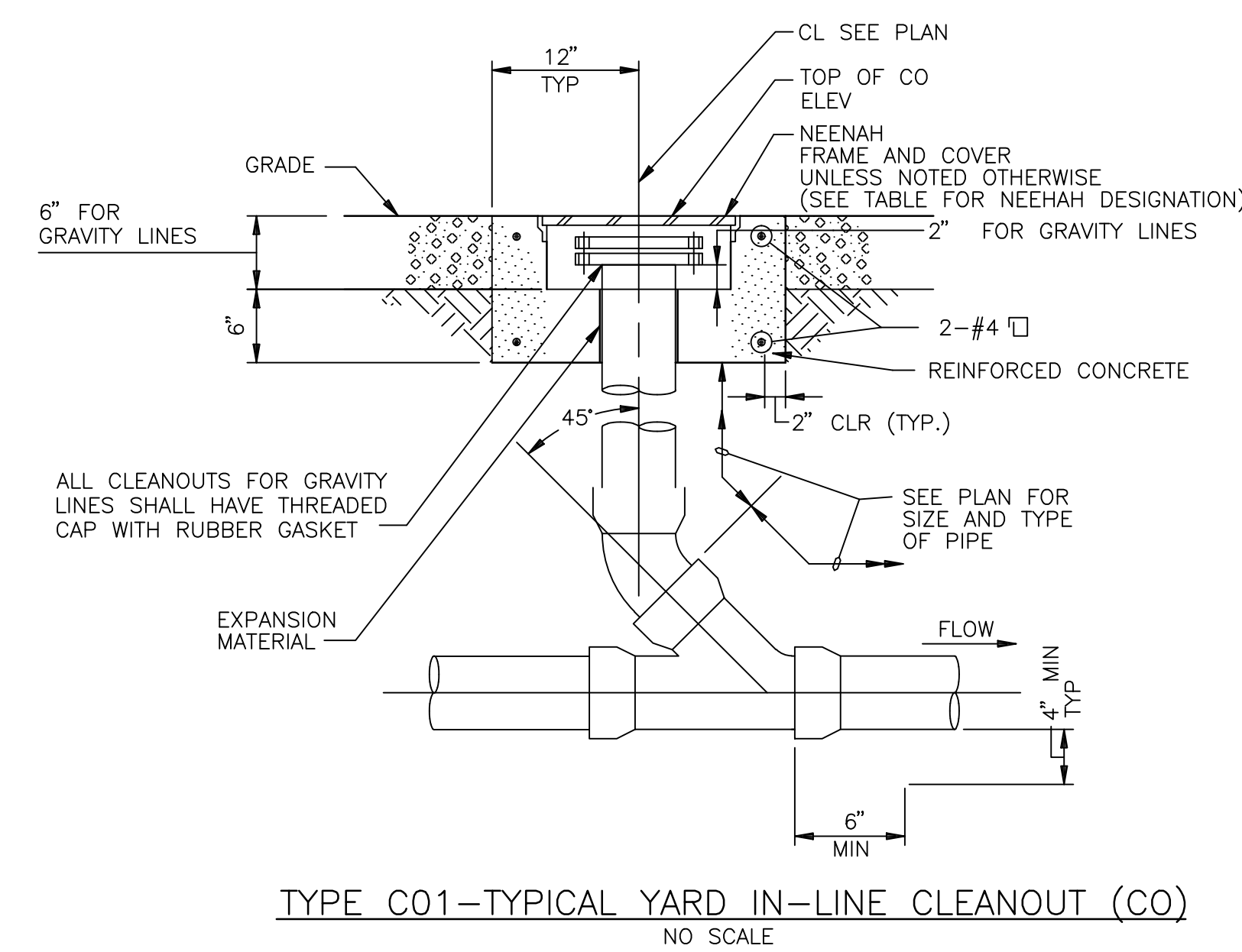
CAD FILE NAME	SEQUENCE No.	DRAWING NUMBER
-	-	<b>XXXXX-015</b>



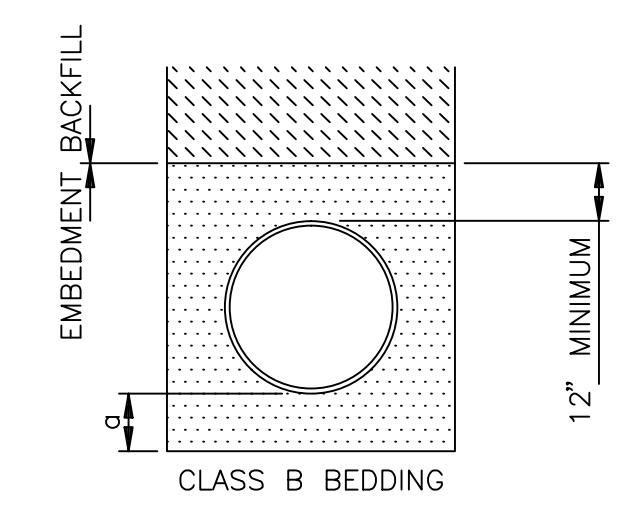
SANITARY LIFT STATION (SLS)	A (INCHES)	B (INCHES)	C (INCHES)	D (INCHES)	TOP OF SLS EL	NORTH COORDINATE	EAST COORDINATE	INLET INV EL	OUTLET EL	MANUFACTURER	MODEL	DRAWING NO.	REMARKS
SLS-01	24.00	29.50	91.80	24.00	112.00	161719.85	498636.33	107.42	107.82	E/ONE	DH071-93	XXXX-015	SEE NOTE 3 & 4

NOTES

- SEE DWG XXXX-003 FOR GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
- DURING CONSTRUCTION A SOIL PIPE GRATE (NEENAH R-4055) SHALL BE USED IN BELL-UP UPON COMPLETION OF AREA DRAIN. AFTER CONSTRUCTION REMOVE PIPE GRATE AND INSTALL STRAINER.
- THE CONTRACTOR SHALL FURNISH AND INSTALL PACKAGED, FACTORY ASSEMBLED GRINDER PUMP STATION AS MANUFACTURED BY ENVIRONMENT ONE CORPORATION AND SPECIFIED IN TABLE. SHOP DRAWINGS DETAILING THE EQUIPMENT TO BE FURNISHED, DIMENSIONAL DATA, OPERATIONAL CHARACTERISTICS, AND MATERIALS OF CONSTRUCTION SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO INSTALLATION OF THE GRINDER PUMP STATION.  
  
THE GRINDER PUMP STATION SHALL BE FURNISHED COMPLETE AND INCLUDE THE FOLLOWING FEATURES:  
  
WATERTIGHT INLET FOR 4" PVC GRAVITY SEWER LINE AND A DISCHARGE CONNECTION COMPATIBLE WITH 1.25" SCHEDULE 40 PVC FORCE MAIN PIPING.  
  
INTEGRAL MOTOR STARTING CONTROLS AND LEVEL SENSING CONTROLS.  
  
ALARM PANEL SHALL BE NEMA 4X ENCLOSURE IN ACCORDANCE WITH E/ONE EXTREME D-SERIES WETWELL/DRYWELL GRINDER PUMP STATION WITH WIRED LEVEL SENSOR SPECIFICATIONS 2.12. THE OPTIONAL ALARM CONTACT PACKAGE AND SERVICE EQUIPMENT/MAIN SERVICE DISCONNECT BREAKER SHALL BE PROVIDED. A SINGLE INCOMING POWER FEEDER TO THE ALARM PANEL WILL BE 120 VAC SINGLE PHASE 30A CIRCUIT WITH GROUNDING CONDUCTOR. THE DRY CONTACT ALARM CIRCUIT SHALL BE INSTALLED BETWEEN THE ALARM PANEL AND THE SCADA SYSTEM IN THE CONTROL BUILDING.  
  
ALARM PANEL SHALL BE FURNISHED AND INSTALLED ON THE STORMWATER PUMP'S UNISTRUT RACK MOUNTED CONTROL PANEL LOCATED ON TOP OF THE PRECAST STORMWATER LIFT STATION.  
  
MANUFACTURER-FURNISHED 6 CONDUCTOR SUPPLY CABLE SHALL BE FURNISHED AND INSTALLED IN 1" OR 1-1/4" CONDUIT AS REQUIRED BY THE INSTALLATION INSTRUCTIONS.  
  
REMOTE INDOOR ALARM MODULE TO INDICATE A HIGH LEVEL CONDITION IN THE GRINDER PUMP STATION. THE REMOTE MODULE SHALL INCLUDE AUDIBLE AND VISUAL ALARMS.  
  
START-UP AND FIELD TESTING BY A FACTORY-TRAINED TECHNICIAN.  
  
INSTRUCTION OF OWNER'S PERSONNEL IN THE OPERATION AND MAINTENANCE OF THE EQUIPMENT. INSTRUCTION SHALL BE PERFORMED BY THE FACTORY-TRAINED TECHNICIAN.  
  
FOUR COPIES OF THE GRINDER PUMP STATION OPERATION AND MAINTENANCE MANUAL IN THREE RING BINDER. ONE ELECTRONIC COPY OF THE GRINDER PUMP STATION OPERATION AND MAINTENANCE MANUAL ON CD SHALL BE PROVIDED.  
  
TWO-YEAR MANUFACTURER'S PARTS AND LABOR WARRANTY ON THE COMPLETE GRINDER PUMP STATION AND ACCESSORIES. THE WARRANTY PERIOD SHALL BEGIN WHEN THE INSTALLATION HAS BEEN ACCEPTED BY THE OWNER.
- THE GRINDER PUMP STATION SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION AND RECOMMENDED INSTALLATION INSTRUCTIONS.
- SEE SANITARY LIFT STATION TABLE THIS DRAWING FOR DIMENSIONS, LOCATIONS AND ELEVATIONS.
- DURING CONSTRUCTION, PRIOR TO BACKFILLING, THE GRINDER PUMP STATION SHALL BE FILLED WITH WATER TO PREVENT FLOTATION OF THE STATION.
- PIPE JOINTS SHALL NOT BE ENCASED WHEN POSSIBLE.



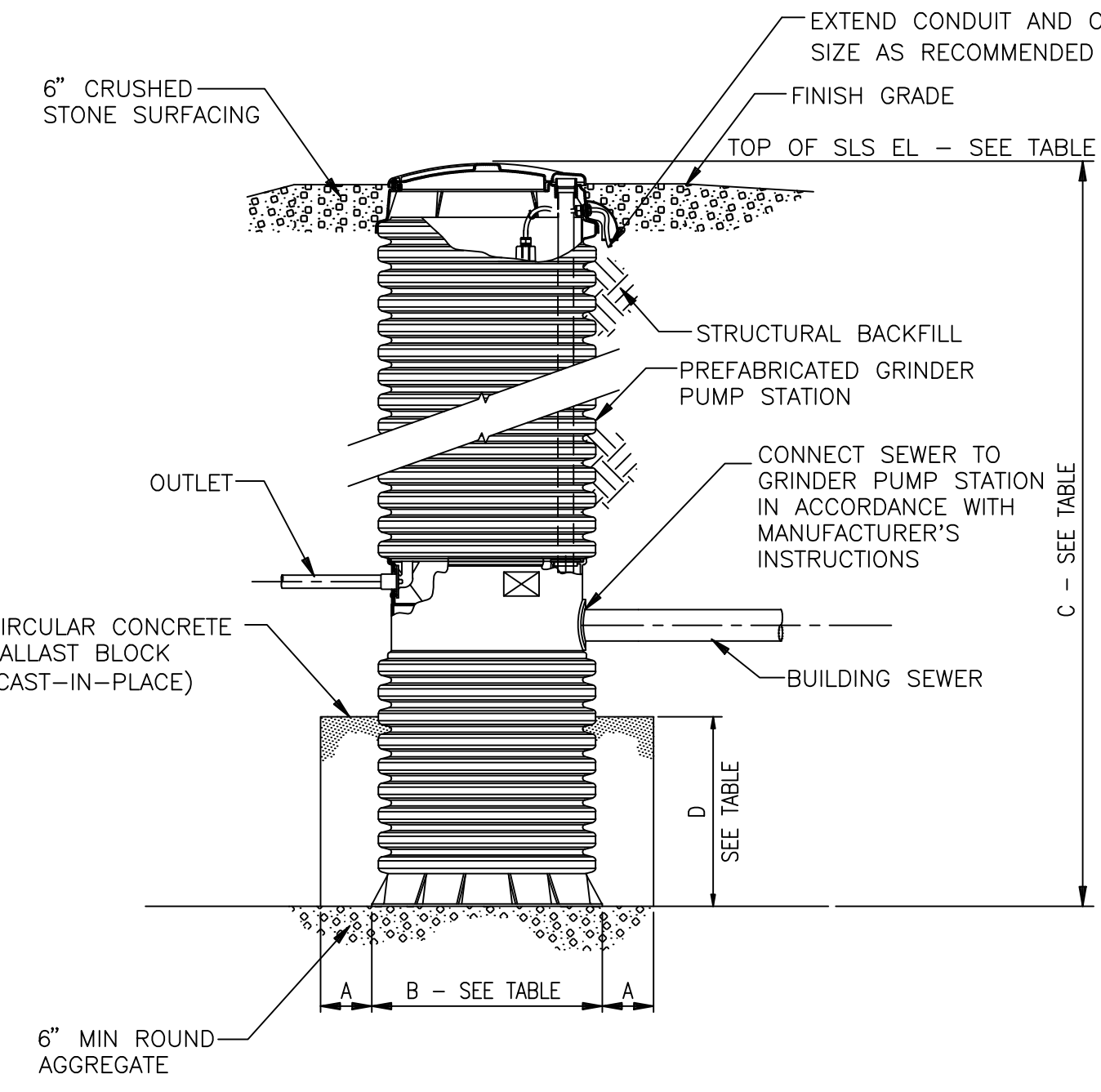
TYPE C01-TYPICAL YARD IN-LINE CLEANOUT (CO)  
NO SCALE



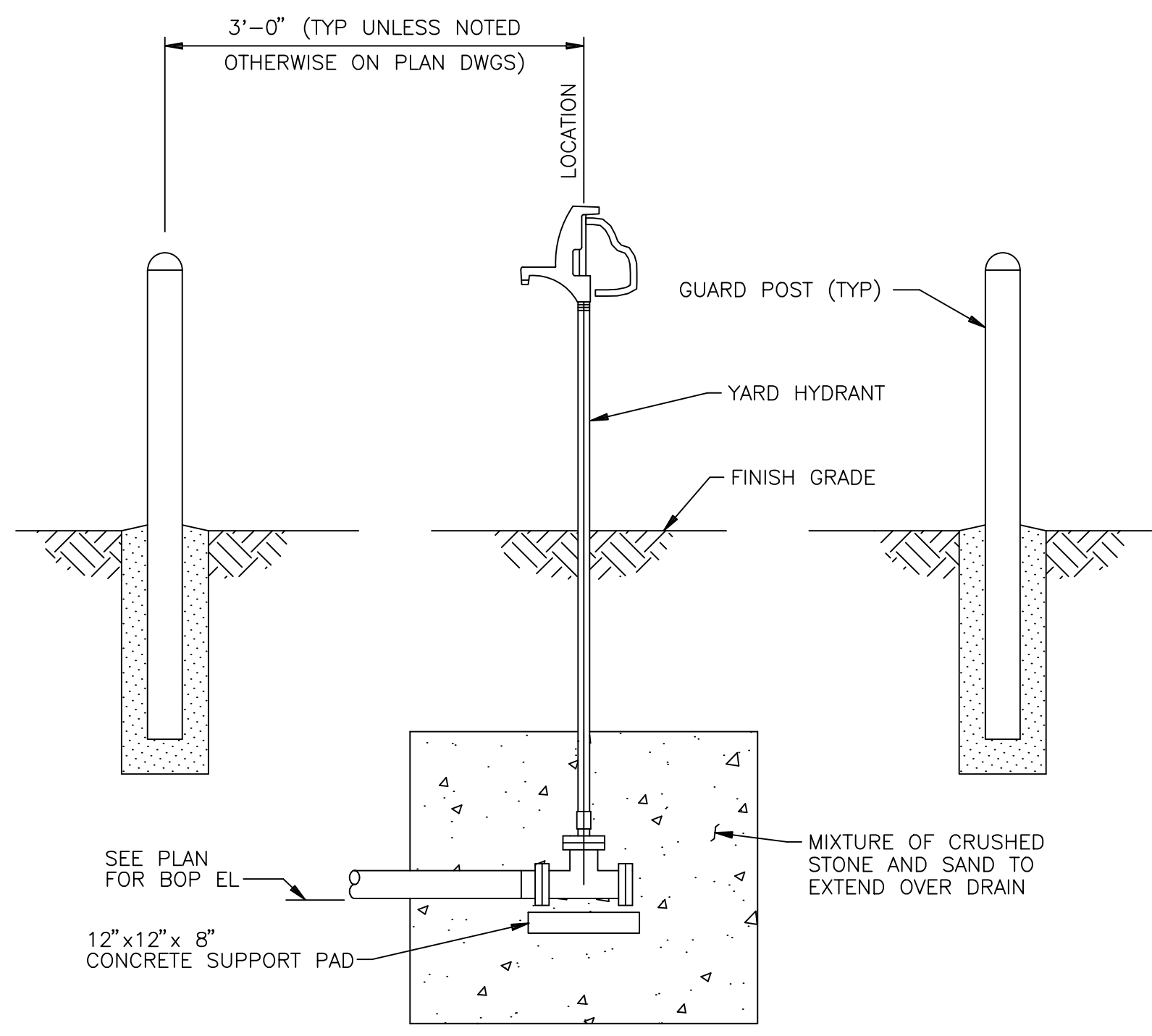
LEGEND  
D NOMINAL PIPE SIZE  
Bc OUTSIDE DIAMETER OF PIPE  
H COVER ABOVE TOP OF PIPE  
a FOUNDATION DEPTH BELOW PIPE  
SEE TABLE

COMPACTED BACKFILL  
SAND EMBEDMENT

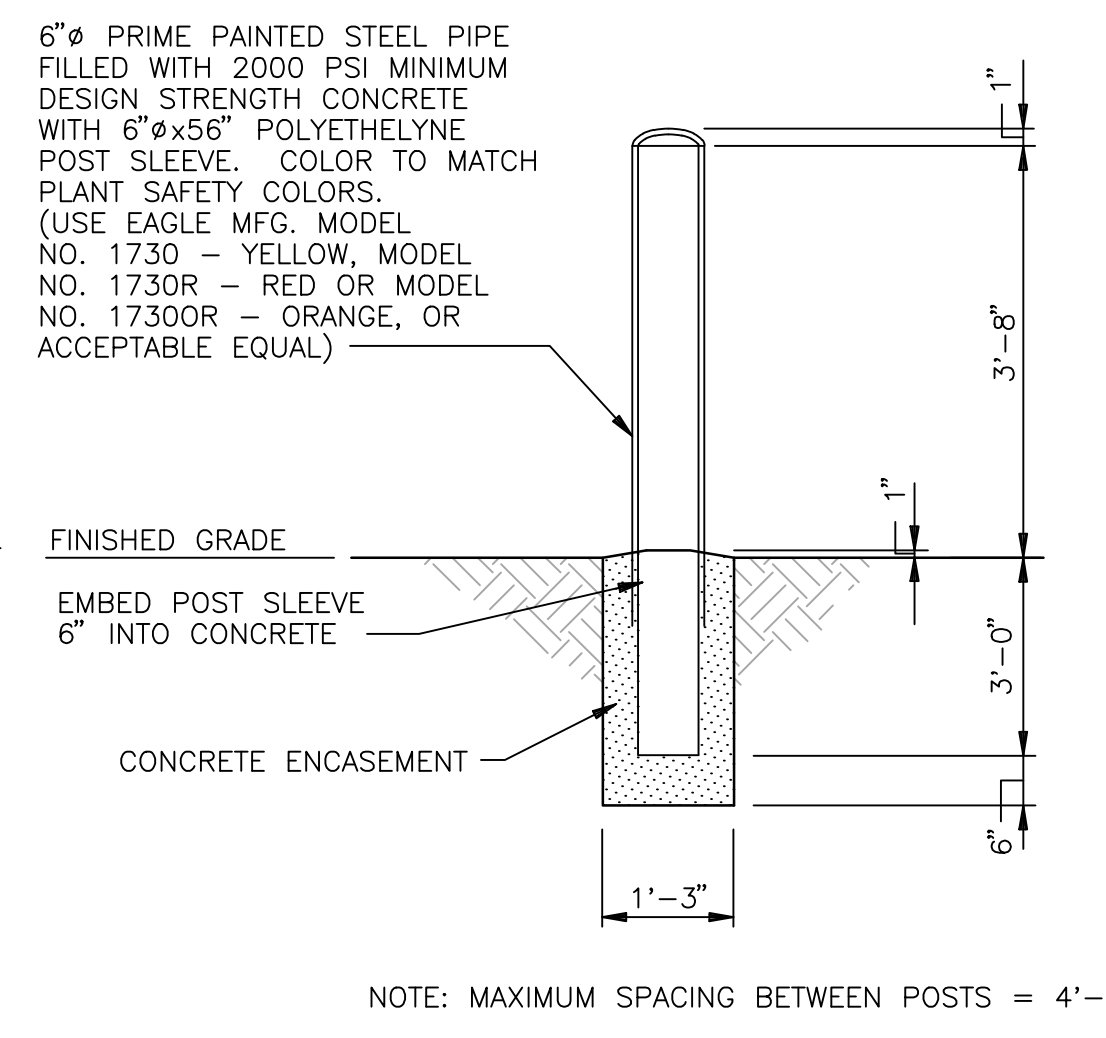
PIPE DIA	NEENAH CATALOG # PRESSURE	NEENAH CATALOG # GRAVITY
4	R-6461-FH	R-6461-BH
6	R-6461-GH	R-6461-CH
8	R-6461-GH	R-6461-CH
10	R-6461-HH	R-6461-DH
12	R-6461-HH	R-6461-EH
14	R-6461-HH	R-6461-EH
16	R-6461-JH	R-6461-FH
18	R-6461-JH	R-6461-GH
20	R-6461-JH	R-6461-GH



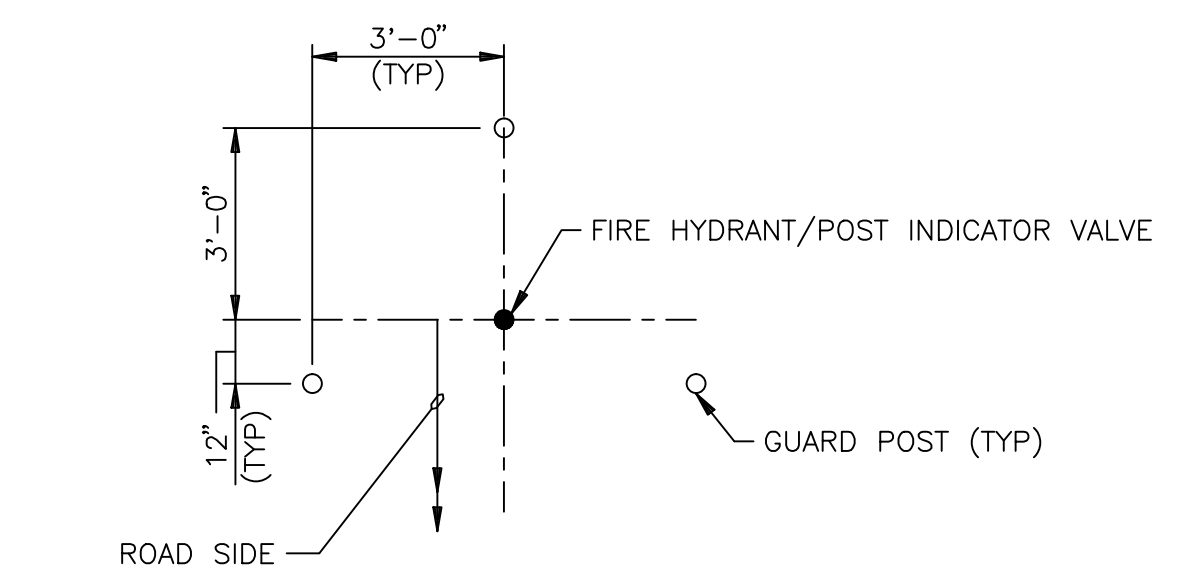
TYPICAL SANITARY LIFT STATION (SLS)  
NO SCALE  
SEE NOTE 2 THIS DWG



TYPICAL YARD HYDRANT  
DETAIL  
NO SCALE



TYPICAL GUARD POST  
NO SCALE



FIRE HYDRANT/POST INDICATOR VALVE  
GUARD POST LOCATION PLAN  
NO SCALE

REFERENCE DRAWINGS

GRADING AND DRAINAGE PLAN	XXXXX-003 THRU 005
EROSION CONTROL PLAN & DETAILS	XXXXX-006 & 008
CATCH BASIN SCHEDULE & DETAILS	XXXXX-007
GRADING AND DRAINAGE DETAILS	XXXXX-009
SURFACING AND FENCING PLAN	XXXXX-014
UNDERGROUND UTILITIES PLAN & DETAILS	XXXXX-015 & 017
ROADS AND PARKING PLAN	XXXXX-016

**PRELIMINARY**  
NOT TO BE USED FOR CONSTRUCTION

<b>BLACK &amp; VEATCH</b> Building a world of difference®
PROJECT NO. 178262
DRAWN RRH
DESIGNED SMR
APPROVED ALL
CHECKED -

1	05/20/13	ISSUED FOR D&M PLAN	RRH	-	SMR	ALL
0	04/19/13	ISSUED FOR D&M PLAN	RRH	-	SMR	ALL
No	Date	Revision	By	Chkd.	Engr.	Supv.



UNDERGROUND UTILITIES - SITE UNDERGROUND UTILITY DETAILS SHELTON SUBSTATION		
CAD FILE NAME	SEQUENCE No.	DRAWING NUMBER
-	-	XXXXX-017

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**PLANT NOTES**

- TREES SHALL BE RANDOMLY STAGGERED AT 10 TO 12 FEET ON CENTER UNLESS SHOWN OTHERWISE.
- TREES SHALL BE MAINTAINED IN A PLUMB VERTICAL AND UPRIGHT POSITION THROUGHOUT THE WARRANTY PERIOD. SUPPORT (I.E. STAKING OR OTHER METHODS) SHALL BE AT THE DISCRETION OF THE LANDSCAPE CONTRACTOR.
- CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES AND NOTIFY OWNER'S REPRESENTATIVES OF ANY CONFLICTS.
- ALL PLANTING AREAS SHALL BE FINISHED GRADED AND APPROVED BY LANDSCAPE CONTRACTOR PRIOR TO THE PLACEMENT AND INSTALLATION OF LANDSCAPE MATERIALS.
- IF A DISCREPANCY EXISTS BETWEEN PLANT QUANTITIES AS SHOWN ON THE DRAWING AND IN THE PLANT LIST, THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLYING AND INSTALLING THE LARGER QUANTITY.
- ALL PLANT MATERIAL SHALL CONFORM ANSI Z60.1 "AMERICAN STANDARDS FOR NURSERY STOCK"
- ALL PLANT MATERIAL SHALL BE GUARANTEED FOR ONE YEAR FROM DATE OF FINAL ACCEPTANCE.
- ALL TREES SHALL HAVE A 3" DEEP LAYER OF SHREDDED MULCH. LIMIT OF MULCH SHALL EXTEND TO 12" BEYOND DRIP LINE OR A 4' DIA. RING, WHICHEVER IS GREATER.
- STORMWATER BASIN SHALL RECEIVE 6" OF LOAM. BASIN SHALL BE SEEDED WITH "NEW ENGLAND WETMIX" AS SUPPLIED BY NEW ENGLAND WETLAND PLANTS, (413) 548-8000. APPLY SEED PER MANUFACTURER'S RECOMMENDATION.
- ALL DISTURBED AREAS NOT OTHERWISE DEVELOPED SHALL BE SEEDED PER CDOT FORM 816 SECTIONS 9.50 AND M.13.04

**PLANT LEGEND**

SYMBOL	QTY	BOTANICAL NAME	COMMON NAME	SIZE
	4	MYRICA PENNSYLVANICA	BAYBERRY	6' HT.
	6	ILEX GLABRA	INKBERRY	4'-6' HT.
	90	JUNIPERUS CHINENSIS 'MOUNTBATTEN'	MOUNTBATTEN JUNIPER	8'-10' HT.
	25	JUNIPERUS VIRGINIANA	EASTERN RED CEDAR	8'-10' HT.
		WOOD CHIPS (PROVIDED BY THE CITY OF SHELTON)		
		HYDROSEEDING		

**LEGEND**

WELL LOCATIONS & NUMBERS DICTICED PER "WELL LOCATION MAP" BY ARCADIS

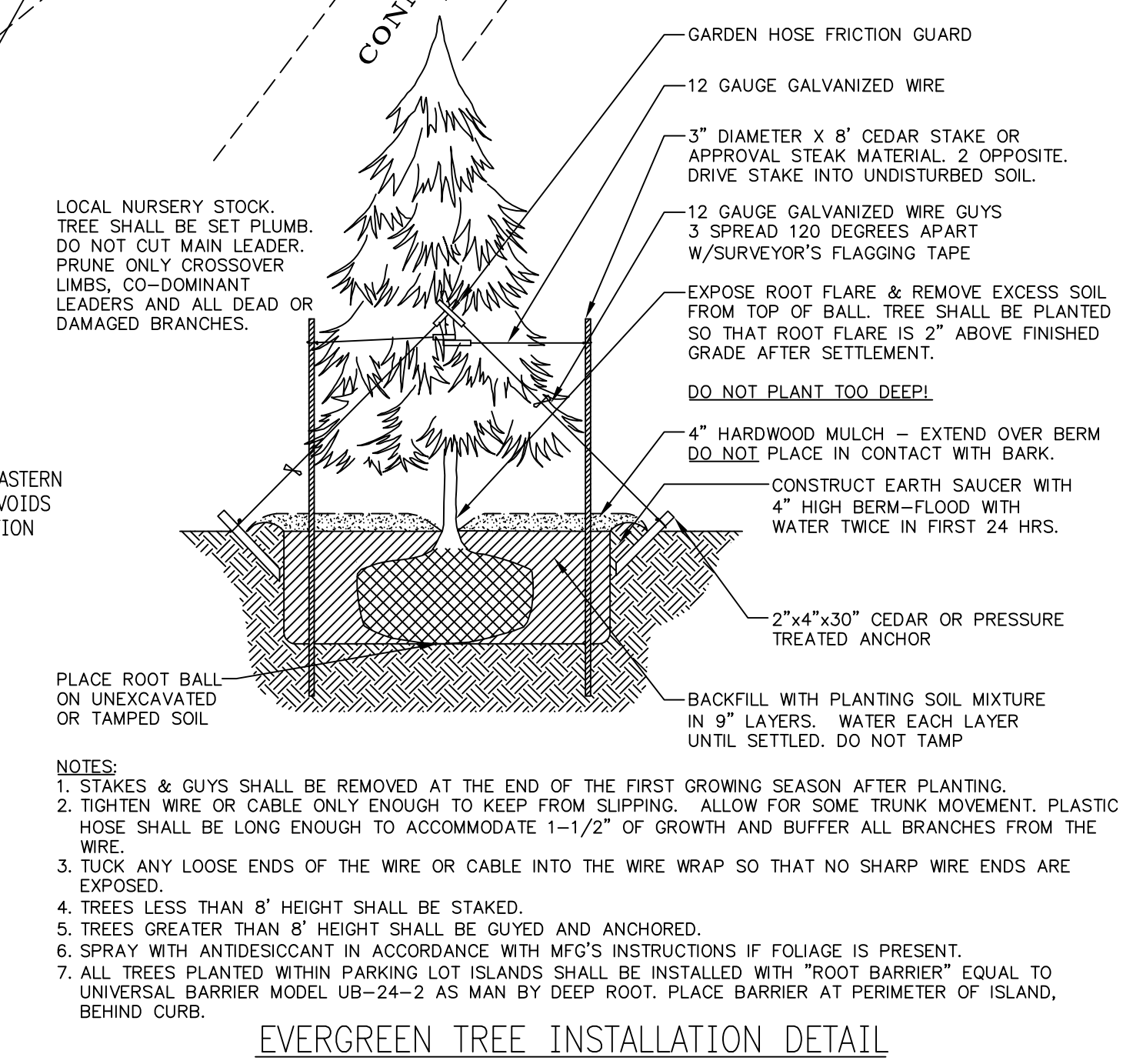
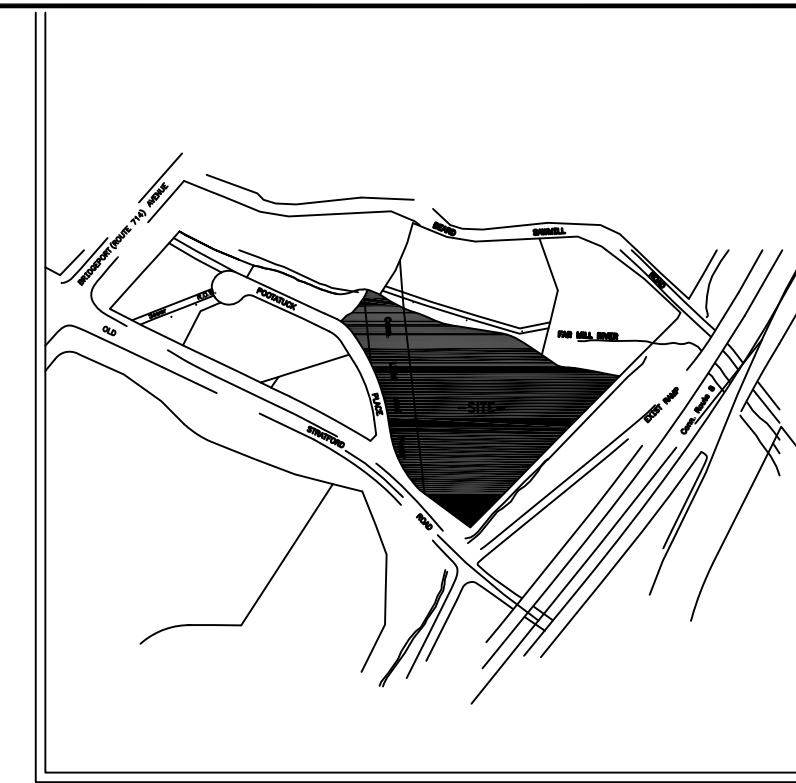
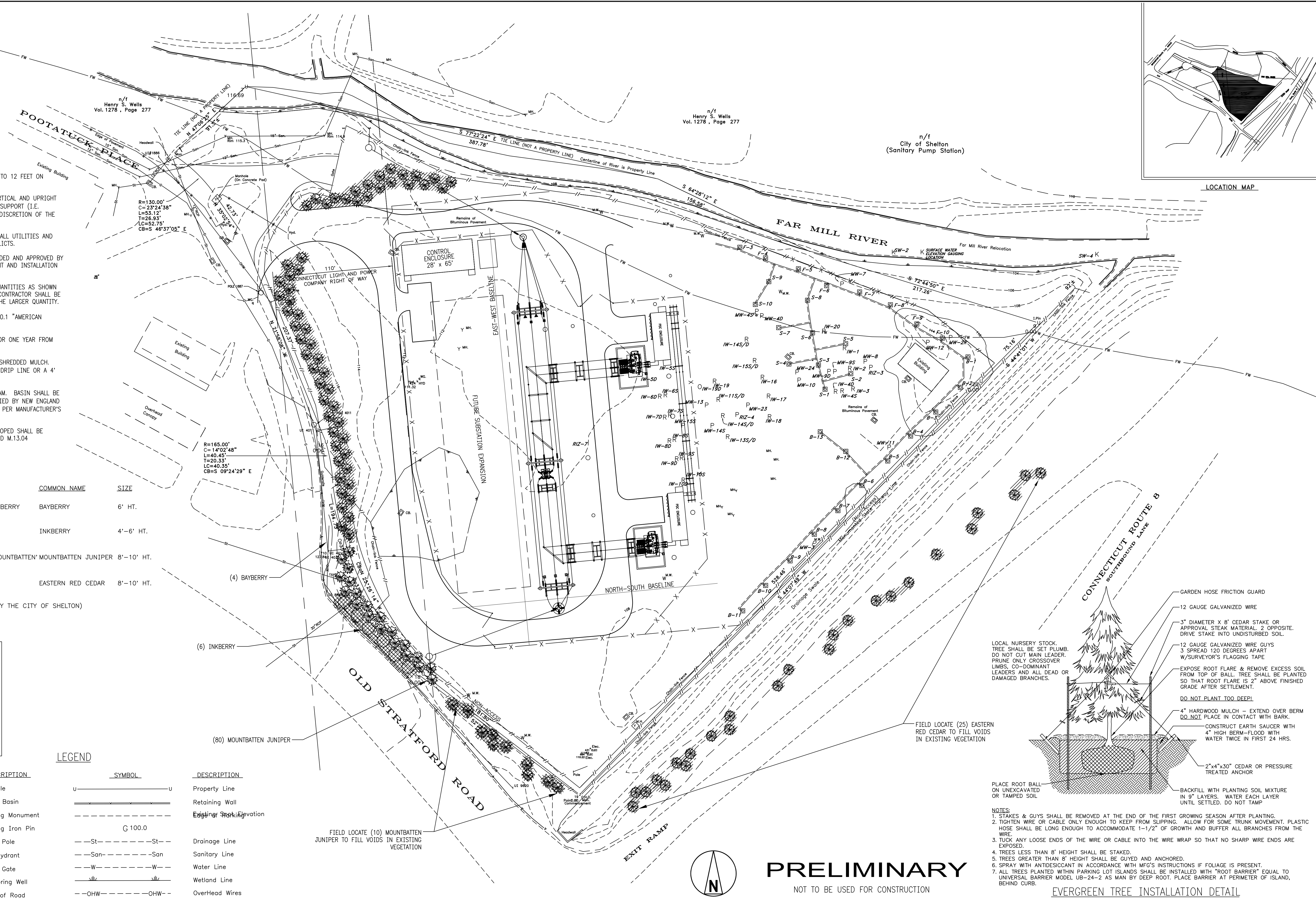
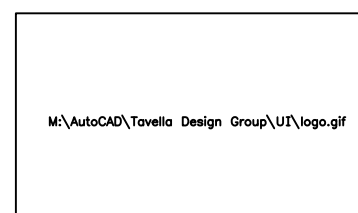
SYMBOL	DESCRIPTION
P	MONITORING WELL
R	INJECTION WELL
⊠	SPARGE WELL
K	SURFACE WATER SAMPLING LOCATIONS

**LEGEND**

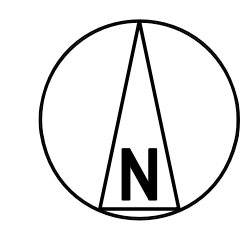
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
Y MH.	Manhole	U	Property Line
CB.	Catch Basin	—	Retaining Wall
J Mon.	Existing Monument	—	Edge of Stake/Relief
S	Existing Iron Pin	G 100.0	
t	Utility Pole	—St—	Drainage Line
k Hyd.	Fire Hydrant	—San—	Sanitary Line
q WG.	Water Gate	—W—	Water Line
W MW.	Monitoring Well	—Wet—	Wetland Line
---	Edge of Road	—OHW—	OverHead Wires
—X—X—X—	NEW 8" FENCE	—G—	Gas Line
—//—//—//—	EXISTING FENCE TO BE REMOVED	—A—	Guide Rail
FW	FLOOD WAY		

**REFERENCE DRAWINGS**

SURFACING AND FENCING - SITE PLAN	25252-014
SUBSTATION ARRANGEMENT PLAN	25252-400
DEMOLITION PLAN	25252-801



- NOTES:**
- STAKES & GUYS SHALL BE REMOVED AT THE END OF THE FIRST GROWING SEASON AFTER PLANTING.
  - TIGHTEN WIRE OR CABLE ONLY ENOUGH TO KEEP FROM SLIPPING. ALLOW FOR SOME TRUNK MOVEMENT. PLASTIC HOSE SHALL BE LONG ENOUGH TO ACCOMMODATE 1-1/2" OF GROWTH AND BUFFER ALL BRANCHES FROM THE WIRE.
  - TUCK ANY LOOSE ENDS OF THE WIRE OR CABLE INTO THE WIRE WRAP SO THAT NO SHARP WIRE ENDS ARE EXPOSED.
  - TREES LESS THAN 8' HEIGHT SHALL BE STAKED.
  - TREES GREATER THAN 8' HEIGHT SHALL BE GUYED AND ANCHORED.
  - SPRAY WITH ANTIDESSICANT IN ACCORDANCE WITH MFG'S INSTRUCTIONS IF FOLIAGE IS PRESENT.
  - ALL TREES PLANTED WITHIN PARKING LOT ISLANDS SHALL BE INSTALLED WITH "ROOT BARRIER" EQUAL TO UNIVERSAL BARRIER MODEL UB-24-2 AS MAN BY DEEP ROOT. PLACE BARRIER AT PERIMETER OF ISLAND, BEHIND CURB.



**PRELIMINARY**  
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PROJECT NO. 178262

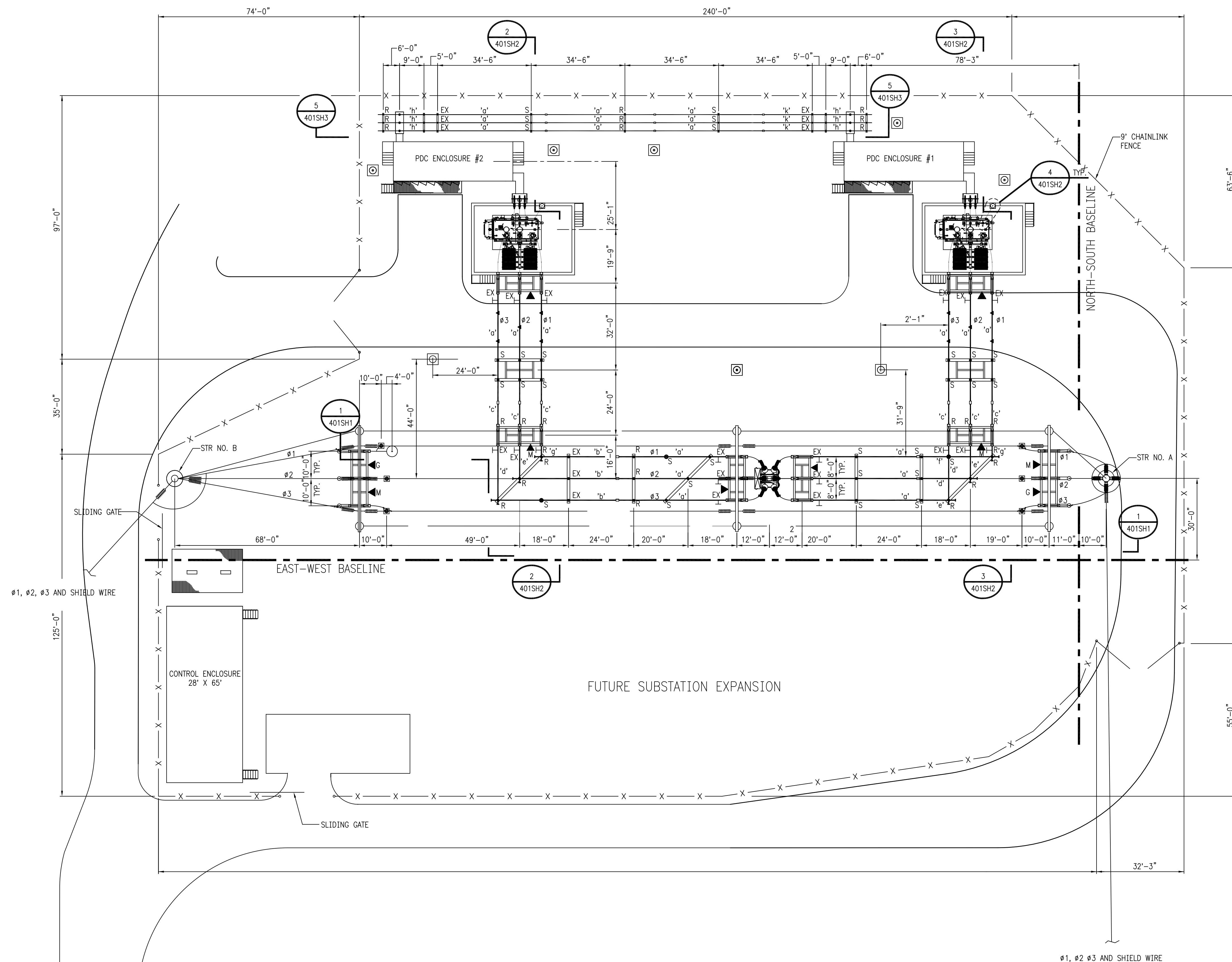
DRAWN	JDB
DESIGNED	JDB
APPROVED	ALL
CHECKED	-

NO.	DATE	REVISION	BY	CHKD.	ENGR.	SUPV.
B	05/20/2013	ISSUED FOR D&M PLAN				
A	03/29/2013	ISSUED FOR REVIEW				



Drawn	Date 03/29/13	Scale: 1:40
Design Engr.	Design Supv.	

SITE PLANTING PLAN		
SHELTON SUBSTATION		
CAD FILE NAME	SEQUENCE No.	DRAWING NUMBER
		XXXX-030



- LEGEND**
- BUS CONNECTION OR JOINT
  - MOBILE TRANSFORMER TAP
  - BUS SUPPORT
  - R RIGID (FIXED) BUS CONNECTION
  - S SLIP BUS CONNECTION
  - EX EXPANSION BUS CONNECTION
  - ⊕ COUPLING CAPACITOR VOLTAGE TRANSFORMER
  - ⊕ BUS GROUNDING STUD
  - ⊕ LIGHTING MAST
  - ⊕ LIGHTNING MAST
  - ⊕ SURGE ARRESTER
  - M▶ DISCONNECT SWITCH MOTOR OPERATOR
  - G▶ DISCONNECT SWITCH GROUNDING SWITCH OPERATOR
  - ▶ DISCONNECT SWITCH MANUAL OPERATOR
- ⊕# INDICATES ITEM NO. ON THE SUBSTATION MATERIAL LIST.
- ⊕# INDICATES ITEM NO. ON THE SUBSTATION MATERIAL LIST.

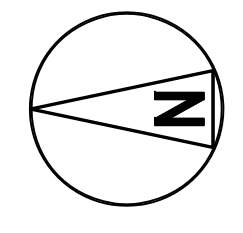
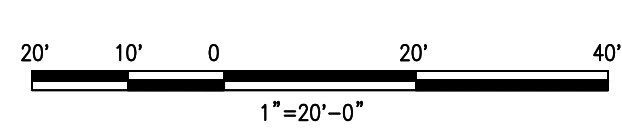
- CONDUCTOR LEGEND**
- ⊕01 5" RIGID BUS SCH 80 (6063-T6 ALLOY)
  - ⊕02 336.4 KCMIL AAC TULIP, 19 STRAND
  - ⊕03 1590 KCMIL ACSR LAPWING, 45/7 STRAND
  - ⊕09 2-1/2" RIGID BUS SCH 40 (6063-T6 ALLOY)
  - ⊕16 19 #10 ALUMOWELD

BUS DESIGN CRITERIA	
FAULT CURRENT:	63KA
FAULT TYPE:	PHASE TO PHASE, FORCE ON EITHER PHASE
DECREMENT FACTOR:	= 0.859
GUST FACTOR:	= 1.0
EXPOSURE COEFFICIENT:	= 0.585
WIND FORCE OVERLOAD FACTOR:	1.75
SHORT CIRCUIT OVERLOAD FACTOR:	1.0
GRAVITATIONAL OVERLOAD FACTOR:	1.75
CASE 1:	SIMULTANEOUS APPLICATION OF EXTREME WIND (120 MPH), SHORT CIRCUIT, AND GRAVITATIONAL FORCES AT 60°F (15.6°C).
CASE 2:	SIMULTANEOUS APPLICATION OF FAST WIND (50 MPH), SHORT-CIRCUIT, AND GRAVITATIONAL FORCES, INCLUDING RADIAL ICE (0.5 INCHES) AT 0°F (-17.8°C).
CASE 3:	VERTICAL DEFLECTION, EXCLUDING RADIAL ICE, BASED ON THE OUTSIDE DIAMETER OF BUS DEFLECTION (INDEPENDENT OF CONDUCTOR OR AMBIENT TEMPERATURE).

**REFERENCE DRAWINGS**

SUBSTATION SECTION 1	XXXX-401SH1
SUBSTATION SECTIONS	XXXX-401SH2
SUBSTATION SECTIONS	XXXX-401SH3

**PRELIMINARY**  
NOT TO BE USED FOR CONSTRUCTION

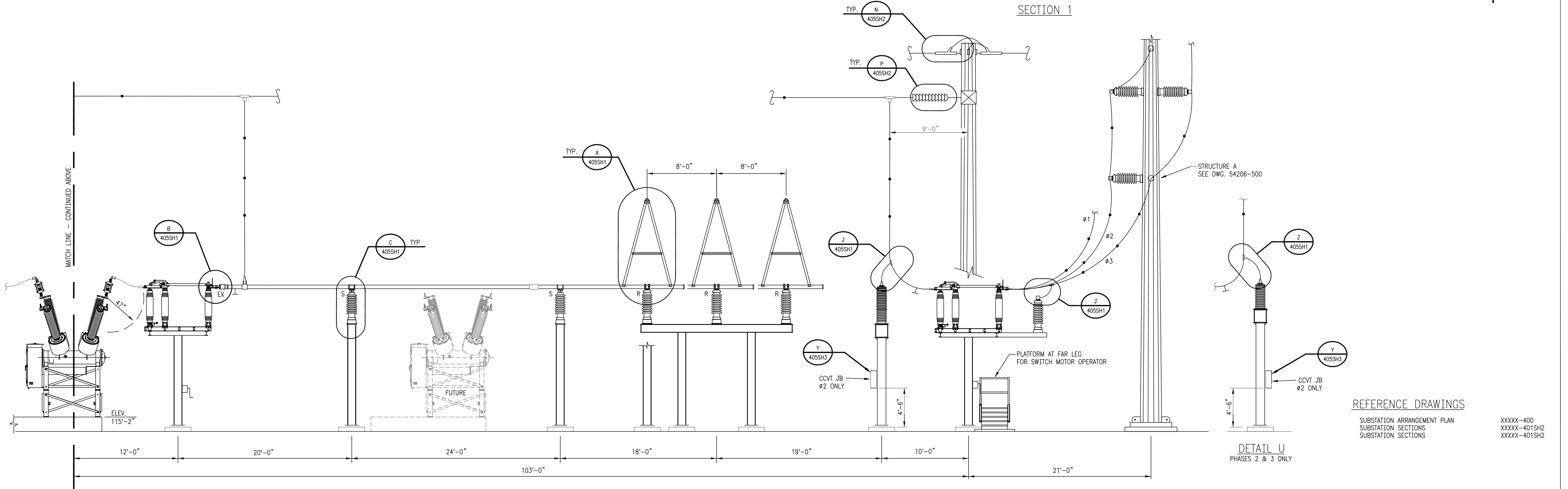
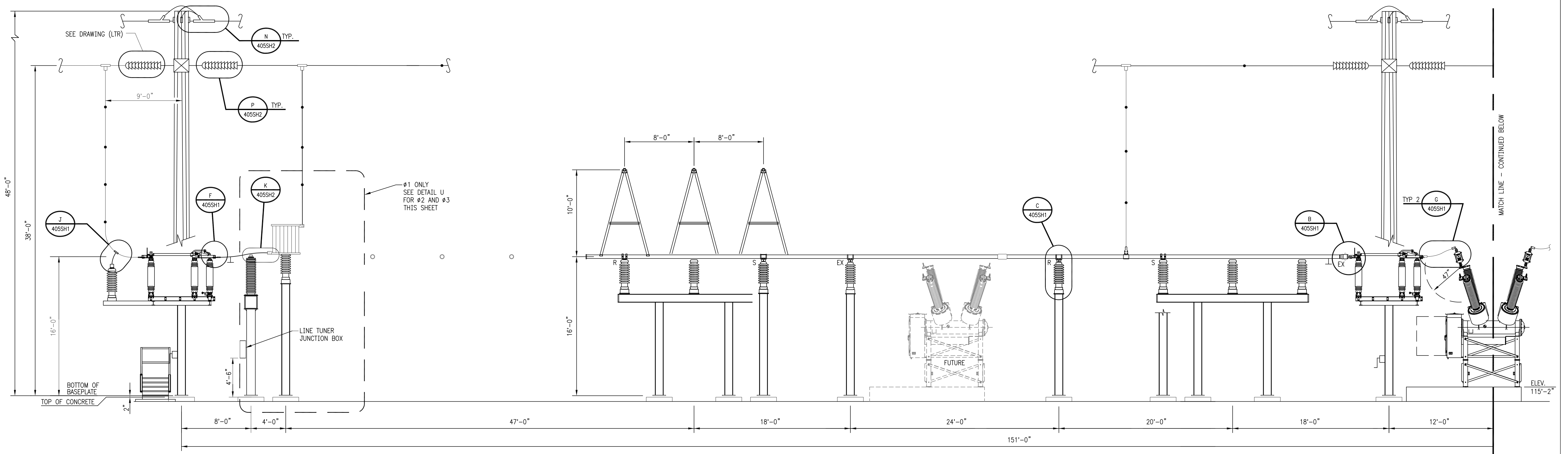


<b>BLACK &amp; VEATCH</b> Building a world of difference®	PROJECT NO. 174811
DRAWN JDB	
DESIGNED JDB	
APPROVED ALL	A 05/20/2013 ISSUED FOR D&M PLAN
CHECKED -	No Date Revision

JDB	-	MRH	ALL
Drawn	Date	Scale: 1" = 20'	
By	Chkd. Engr. Supv.	Chkd.	Design Engr. Design Supv.



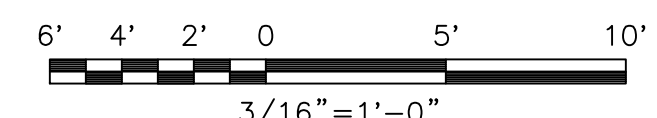
EQUIPMENT PLAN SHELTON SUBSTATION		
CAD FILE NAME	SEQUENCE No.	DRAWING NUMBER
		XXXXX-400



REFERENCE DRAWINGS  
 SUBSTATION ARRANGEMENT PLAN  
 SUBSTATION SECTIONS  
 SUBSTATION SECTIONS  
 XXXXX-400  
 XXXXX-401SH2  
 XXXXX-401SH2

**PRELIMINARY**

NOT TO BE USED FOR CONSTRUCTION



<b>BLACK &amp; VEATCH</b> Building a world of difference®	
PROJECT NO. 178262	
DRAWN	JDB
DESIGNED	JDB
APPROVED	ALL
CHECKED	-

No.	Date	Revision	By	Chkd.	Engr.	Supv.
A	05/20/2013	ISSUED FOR D&M PLAN	JDB	MRH	ALL	

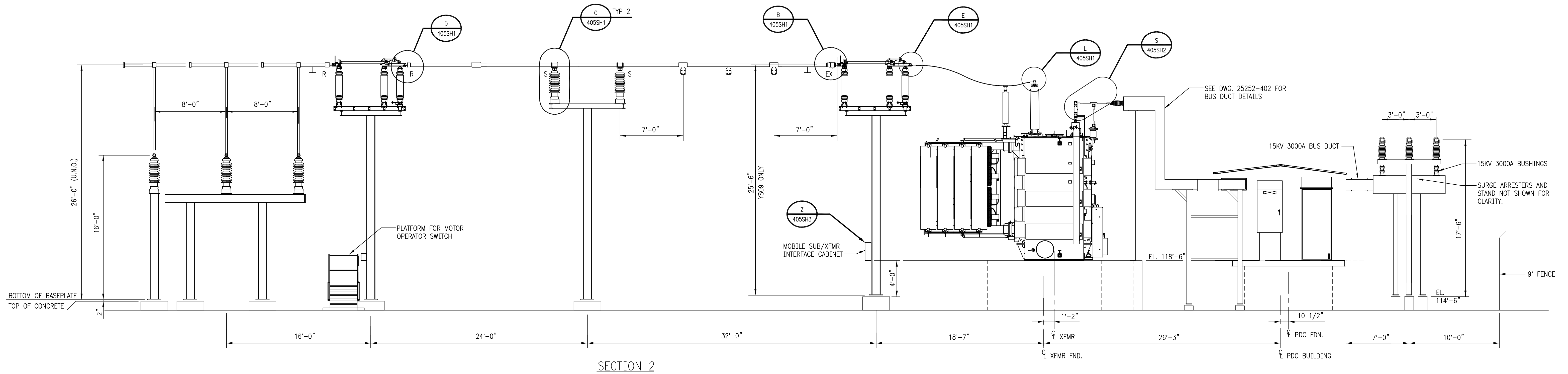


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Chkd.	Design Engr.	Design Supv.

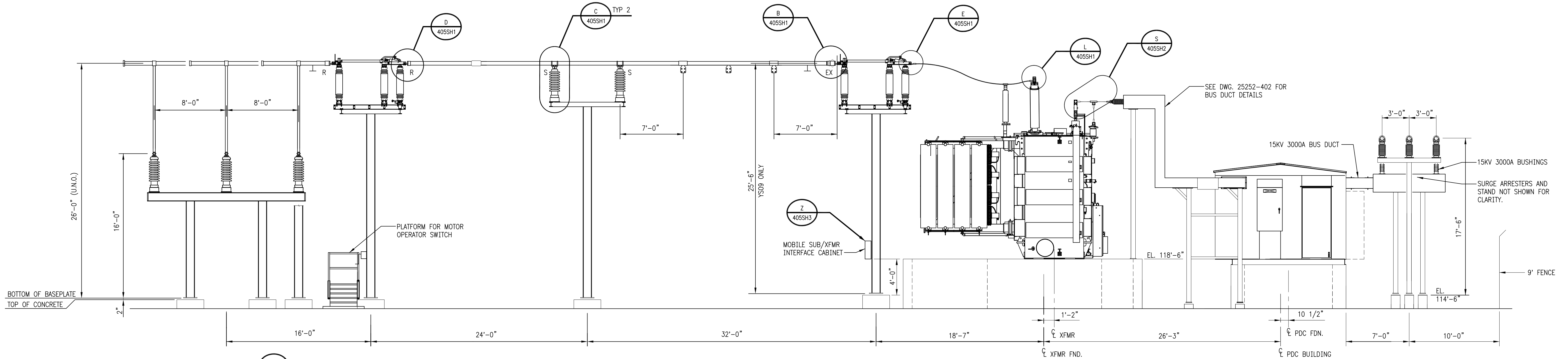
SUBSTATION SECTION 1

SHELTON SUBSTATION

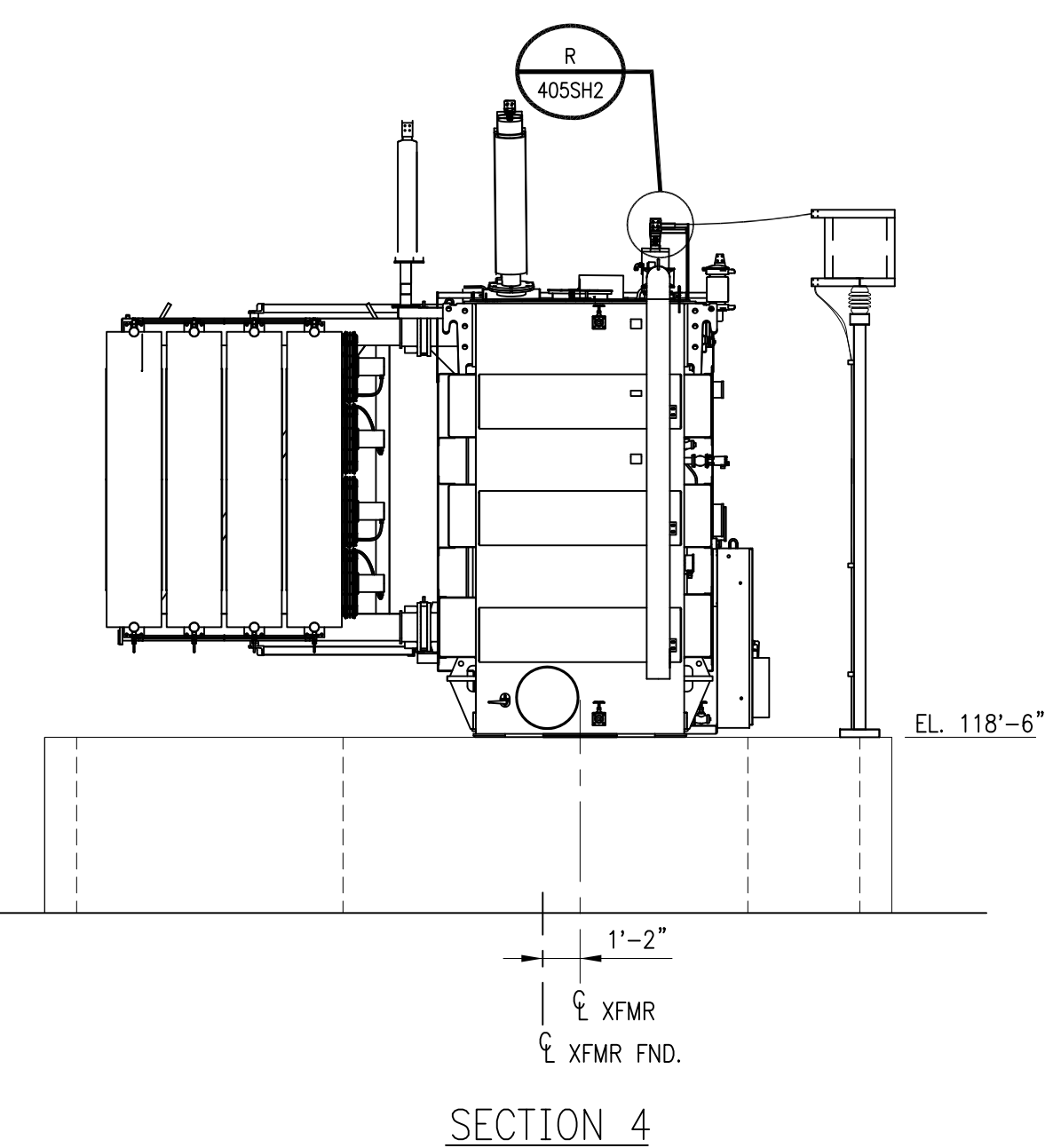
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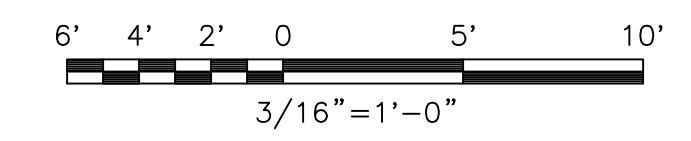
SECTION 2



SECTION 3



SECTION 4



# PRELIMINARY

NOT TO BE USED FOR CONSTRUCTION

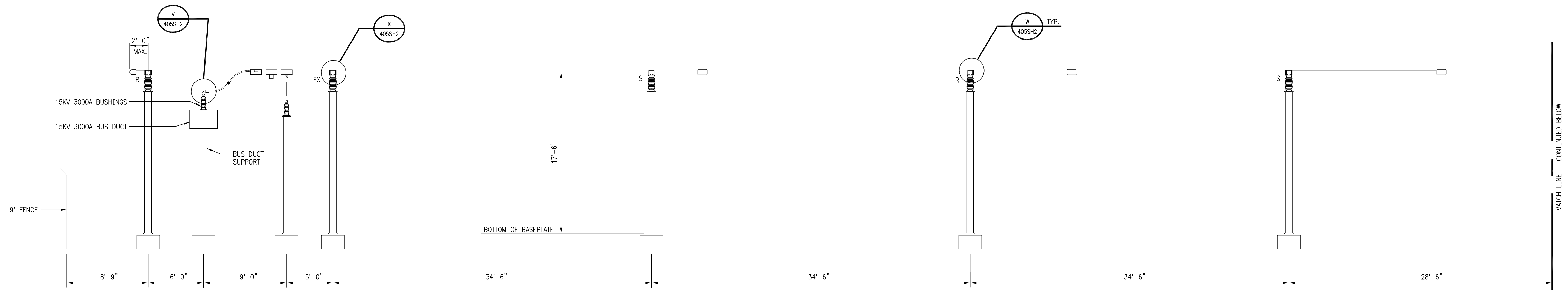
**NOTES**

- 1. SEE MATERIAL LIST FOR DESCRIPTIONS OF EQUIPMENT, STRUCTURES, AND FITTINGS.

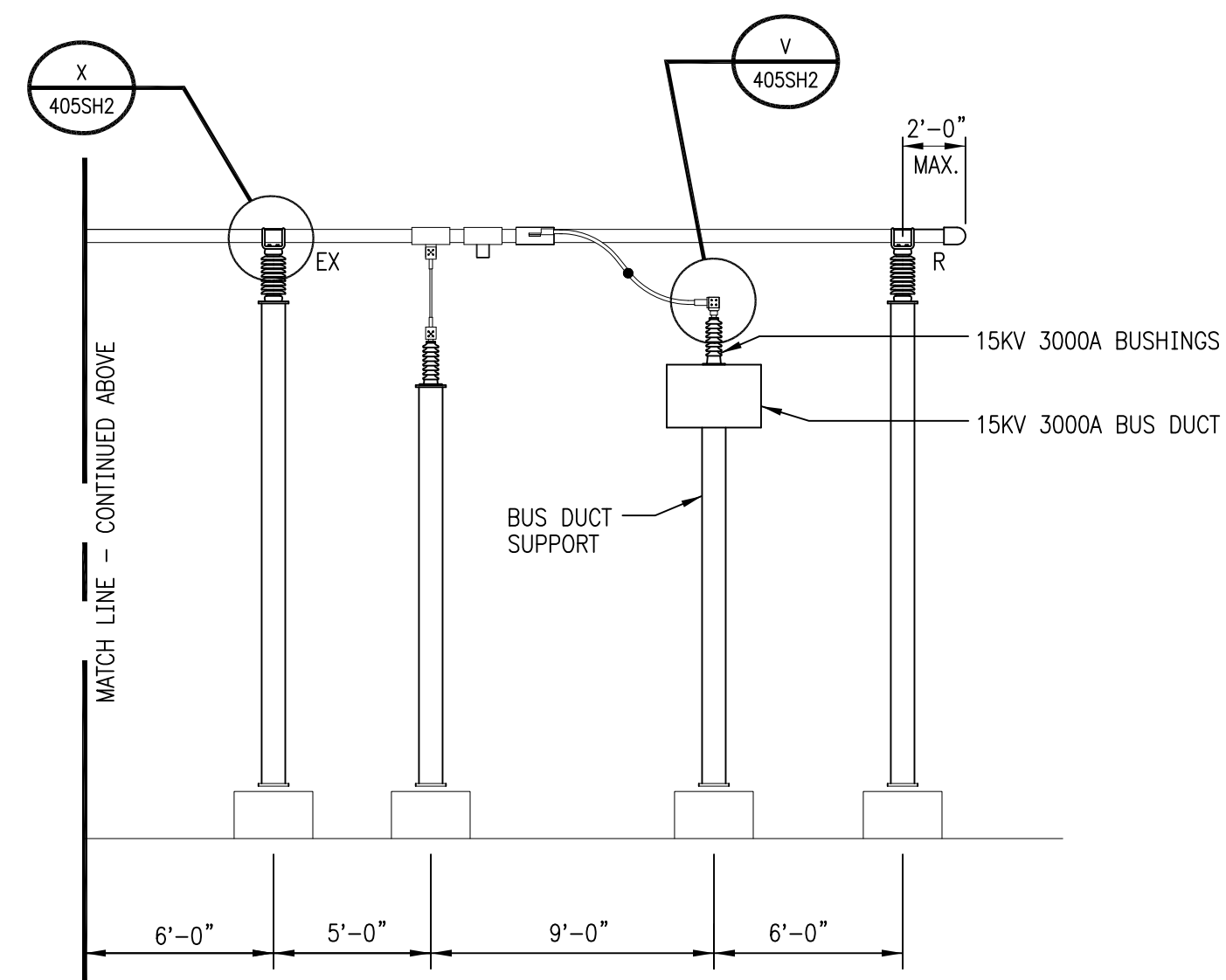
**REFERENCE DRAWINGS**

SUBSTATION ARRANGEMENT PLAN	XXXXX-400
SUBSTATION SECTION 1	XXXXX-401SH1
SUBSTATION SECTION	XXXXX-401SH3

<p>PROJECT NO. 178262</p> <p>DRAWN JDB</p> <p>DESIGNED JDB</p> <p>APPROVED ALL</p> <p>CHECKED -</p>	<p>DATE</p> <p>REVISION</p>	<p>JDB</p> <p>MRH</p> <p>ALL</p>		SUBSTATION SECTIONS		
				SHELTON SUBSTATION		
<p>Drawn _____ Date 1/30/2012 Scale: 3/16" = 1'-0"</p> <p>Chkd. _____ Design Engr. _____ Design Supv. _____</p>			<p>CAD FILE NAME _____ SEQUENCE No. _____ DRAWING NUMBER XXXXX-401SH2</p>			



SECTION 5



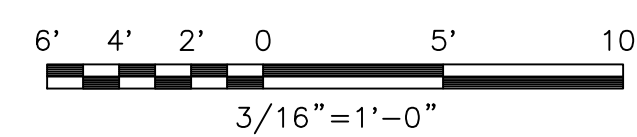
SECTION 5 - CONTINUED

REFERENCE DRAWINGS

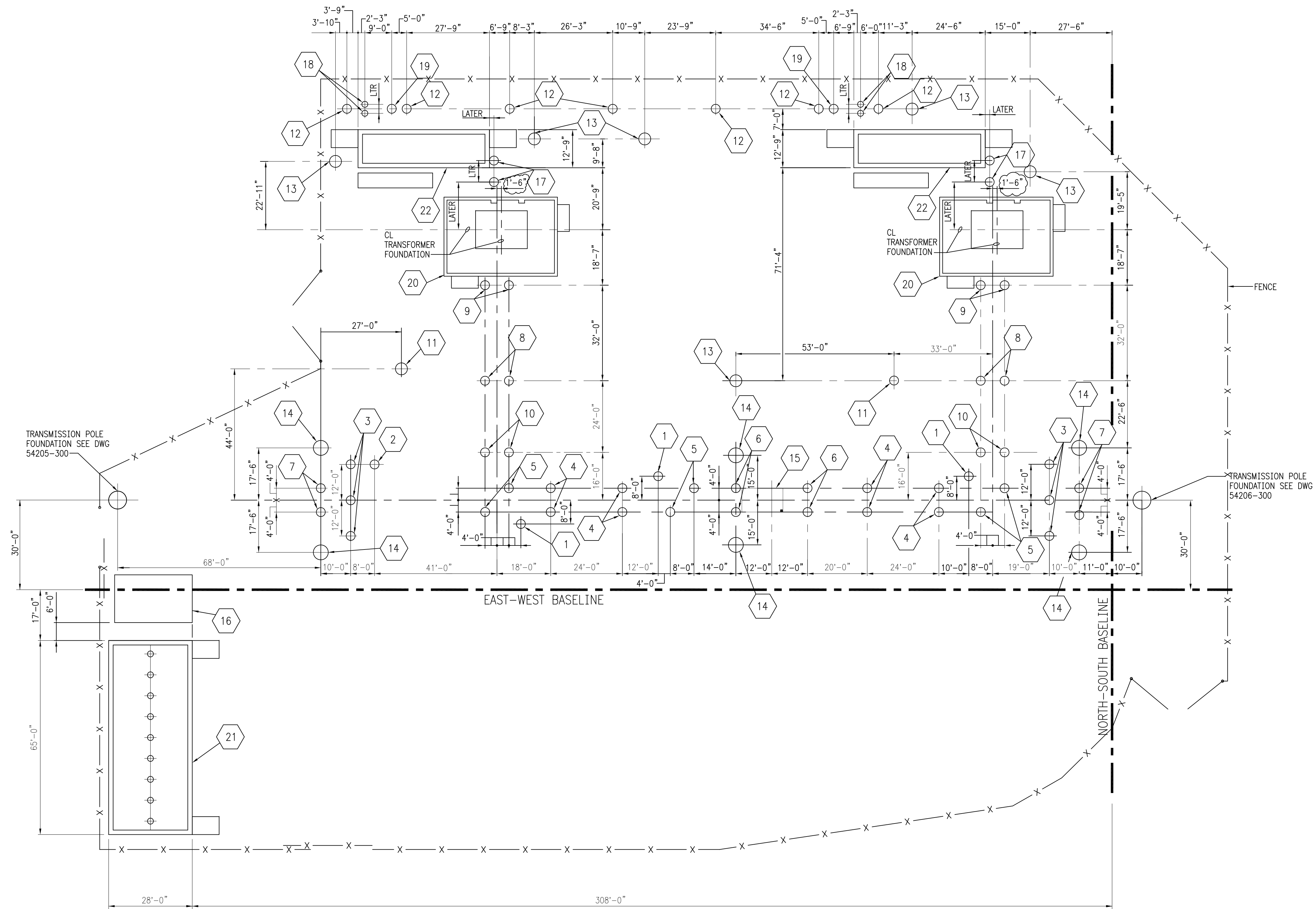
SUBSTATION ARRANGEMENT PLAN XXXXX-400  
 SUBSTATION SECTION 1 XXXXX-401SH1  
 SUBSTATION SECTIONS XXXXX-401SH2

**PRELIMINARY**

NOT TO BE USED FOR CONSTRUCTION



						SUBSTATION SECTIONS					
PROJECT NO. 178262		The United Illuminating Company				SHELTON SUBSTATION					
DRAWN JDB DESIGNED JDB APPROVED ALL CHECKED -	A 05/20/2013 No Date	ISSUED FOR D&M PLAN Revision	JDB By	SAB Chkd.	MRH Engr.	ALL Supv.	Drawn Chkd.	Date 1/30/2012 Design Engr.	Scale: 3/16" = 1'-0" Design Supv.	CAD FILE NAME SEQUENCE No.	DRAWING NUMBER XXXXX-401SH3



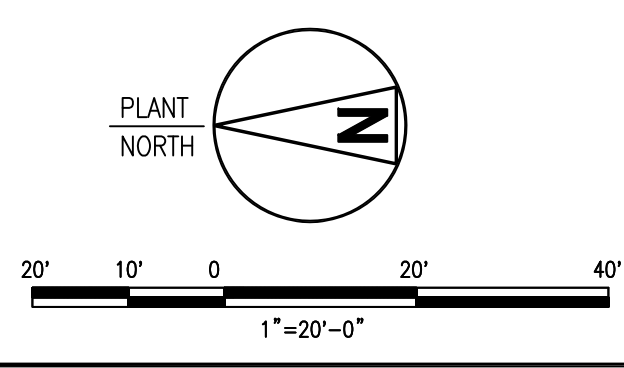
FOUNDATION LIST				
FOUNDATION NUMBER	TOP OF CONCRETE ELEV. (SEE NOTE 9)	DETAIL DRAWING	DESCRIPTION	
1	114'-0"	25252-411	115KV 1-PHASE LOW BUS SUPPORT FOUNDATION	
2	114'-0"	25252-411	115KV WAVE TRAP SUPPORT FOUNDATION	
3	114'-0"	25252-411	115KV CCVT SUPPORT FOUNDATION	
4	114'-0"	25252-411	115KV 3-PHASE LOW BUS SUPPORT FOUNDATION	
5	114'-0"	25252-411	115KV 3-PHASE LOW ANGLED BUS SUPPORT FOUNDATION	
6	114'-0"	25252-411	115KV LOW SWITCH SUPPORT FOUNDATION	
7	114'-0"	25252-411	115KV LOW SWITCH SUPPORT WITH SURGE ARRESTERS FOUNDATION	
8	114'-0"	25252-411	115KV 3-PHASE HIGH DOUBLE INSULATOR SUPPORT FOUNDATION	
9	114'-6"	25252-411	115KV HIGH SWITCH SUPPORT WITH SURGE ARRESTERS FOUNDATION	
10	114'-0"	25252-411	115KV HIGH SWITCH SUPPORT FOUNDATION	
11	114'-0"	25252-411	YARD LIGHTING MAST FOUNDATION	
12	114'-6"	25252-411	15KV 3-PHASE BUS SUPPORT	
13	114'-6"	25252-411	LIGHTNING MAST FOUNDATION	
14	114'-0"	25252-411	115KV H-FRAME STRUCTURE FOUNDATION	
15	115'-2"	25252-411	115KV BREAKER FOUNDATION	
16	114'-6"	25252-411	AC STATION SERVICE TRANSFORMER FOUNDATION	
17	114'-6"	25252-411	NON-SEGREGATED BUS DUCT SUPPORT FOUNDATION	
18	114'-6"	25252-411	NON-SEGREGATED BUS DUCT SUPPORT FOUNDATION	
19	114'-6"	25252-411	15KV SURGE ARRESTER SUPPORT FOUNDATION	
20	118'-6"	25252-412	115KV DISTRIBUTION TRANSFORMER FOUNDATION AND OIL CONTAINMENT PIT	
21	117'-10"	25252-411 & 25252-413	CONTROL ENCLOSURE FOUNDATION	
22	117'-10"	25252-414	PDC ENCLOSURE FOUNDATION	

- GENERAL NOTES**
- CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS:  
 A) 178262.71.0200: BELOW GRADE CONSTRUCTION (WITH ASSOCIATED U.I. TECHNICAL REQUIREMENTS FOR STANDARD SUBSTATION CONSTRUCTION).  
 B) 178262.71.0401: DRILLED PIERS (WITH ASSOCIATED U.I. TECHNICAL REQUIREMENTS FOR STANDARD SUBSTATION CONSTRUCTION).
  - DIMENSIONS ARE TO THE CENTERLINE OF THE FOUNDATION UNLESS NOTED OTHERWISE.
  - MINIMUM STRENGTH OF CONCRETE AT 28 DAY TESTING (f'c) SHALL BE 4,000 PSI.
  - ALL REINFORCING STEEL SHALL BE ASTM A615 GRADE 60.
  - ALL DRILLED PIERS SHALL BE ACCURATELY LOCATED, SIZED AND PLUMBED. THE MAXIMUM VARIATION OF ANY PIER FROM ITS DESIGNATED LOCATION SHALL NOT BE MORE THAN 2 INCHES AT ITS TOP ELEVATION. VARIATION OF THE PIER LOCATION WITHIN THE SPECIFIED LIMITS SHALL NOT BE CAUSE FOR VARIATION OF THE ANCHOR BOLT LOCATIONS.
  - THE AGGREGATE SURFACE INSIDE THE SUBSTATION, AND EXTENDING 3'-0" OUTSIDE THE FENCE, SHALL CONSIST OF TWO LAYERS WITH THE FOLLOWING REQUIREMENTS:  
 A) BASE COURSE: 4 INCHES OF TRAP ROCK THAT PASSES A 1-1/2" SIEVE AND IS RETAINED ON A 1" SIEVE.  
 B) SURFACE COURSE: 2 INCHES OF CRUSHER RUN TRAP ROCK UNIFROMLY GRADED FROM 3/4" TO CRUSHER FINES.
  - DENOTES FOUNDATION ORIENTATION MARK.
  - SEE THE SITE PLAN (DWG XXXXX-001) FOR LOCATION OF BASELINE COORDINATES.
  - VERTICAL ELEVATIONS SHOWN ARE BASED ON NGVD 29.

**PRELIMINARY**  
NOT TO BE USED FOR CONSTRUCTION

REFERENCE DRAWINGS  
SITE PLAN  
SUBSTATION ARRANGEMENT PLAN

XXXXX-001  
XXXXX-400

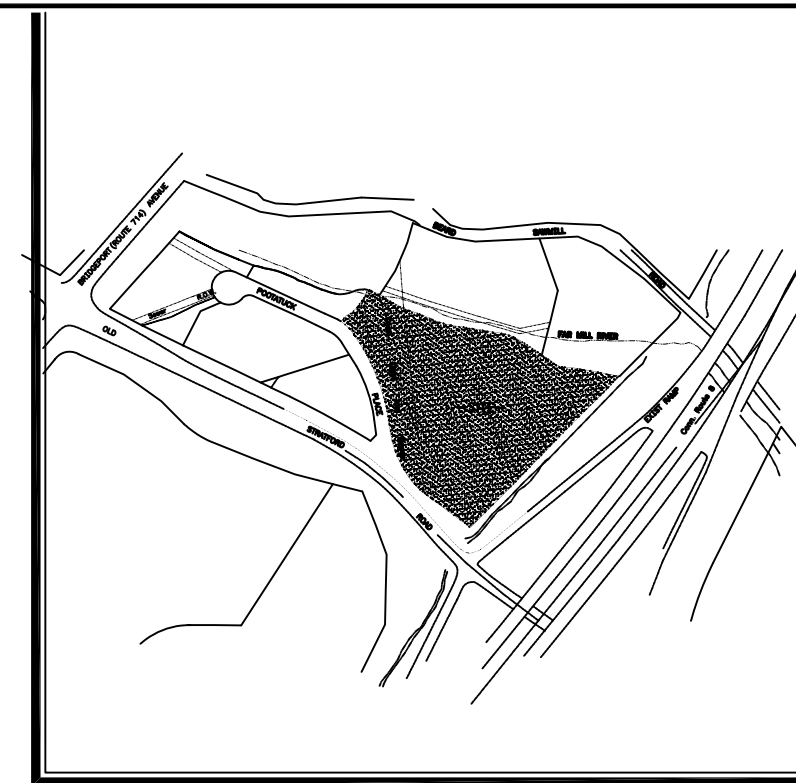


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DRAWN BD	
DESIGNED JAH	
APPROVED ALL	A 05/20/2013 ISSUED FOR D&M PLAN
CHECKED -	No Date Revision

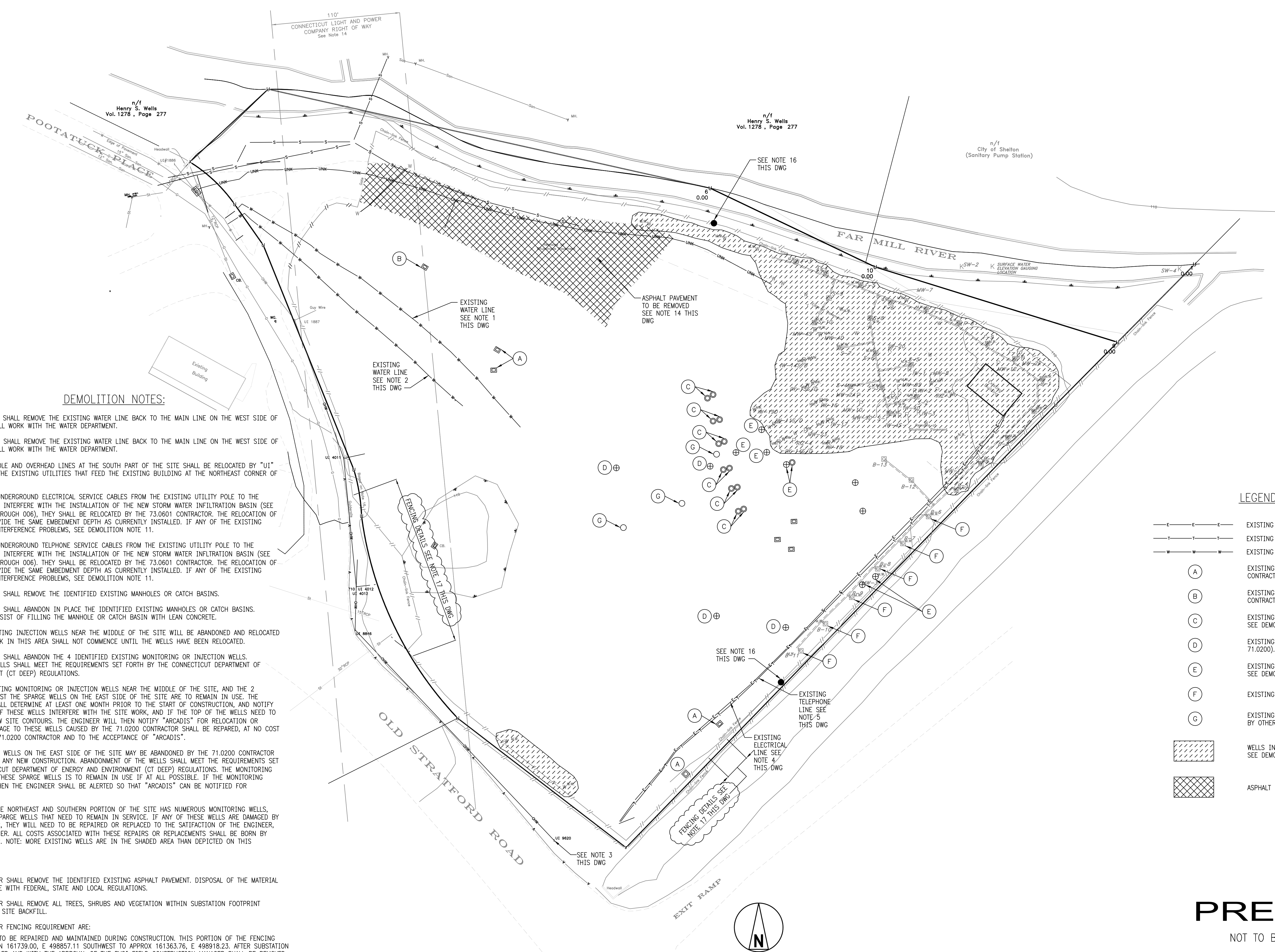
BD	-	JAH	ALL
Drawn	Date	4/9/2012	Scale: 1" = 20'
By	Chkd. Engr. Supv.	Chkd.	Design Engr. Design Supv.

**ui**  
The United Illuminating Company

FOUNDATION PLAN		
SHELTON SUBSTATION		
CAD FILE NAME	SEQUENCE No.	DRAWING NUMBER
		XXXXX-410



LOCATION MAP



**DEMOLITION NOTES:**

1. THE 71.0200 CONTRACTOR SHALL REMOVE THE EXISTING WATER LINE BACK TO THE MAIN LINE ON THE WEST SIDE OF THE SITE. COORDINATE ALL WORK WITH THE WATER DEPARTMENT.
2. THE 71.0200 CONTRACTOR SHALL REMOVE THE EXISTING WATER LINE BACK TO THE MAIN LINE ON THE WEST SIDE OF THE SITE. COORDINATE ALL WORK WITH THE WATER DEPARTMENT.
3. THE EXISTING UTILITY POLE AND OVERHEAD LINES AT THE SOUTH PART OF THE SITE SHALL BE RELOCATED BY "UI" IN ORDER TO RELOCATE THE EXISTING UTILITIES THAT FEED THE EXISTING BUILDING AT THE NORTHEAST CORNER OF THE SITE.
4. BECAUSE THE EXISTING UNDERGROUND ELECTRICAL SERVICE CABLES FROM THE EXISTING UTILITY POLE TO THE EXISTING BUILDING WILL INTERFERE WITH THE INSTALLATION OF THE NEW STORM WATER INFILTRATION BASIN (SEE DRAWINGS 25252-003 THROUGH 006), THEY SHALL BE RELOCATED BY THE 73.0601 CONTRACTOR. THE RELOCATION OF THE SERVICE SHALL PROVIDE THE SAME EMBEDMENT DEPTH AS CURRENTLY INSTALLED. IF ANY OF THE EXISTING SPARGE WELLS CREATE INTERFERENCE PROBLEMS, SEE DEMOLITION NOTE 11.
5. BECAUSE THE EXISTING UNDERGROUND TELEPHONE SERVICE CABLES FROM THE EXISTING UTILITY POLE TO THE EXISTING BUILDING WILL INTERFERE WITH THE INSTALLATION OF THE NEW STORM WATER INFILTRATION BASIN (SEE DRAWINGS 25252-003 THROUGH 006), THEY SHALL BE RELOCATED BY THE 73.0601 CONTRACTOR. THE RELOCATION OF THE SERVICE SHALL PROVIDE THE SAME EMBEDMENT DEPTH AS CURRENTLY INSTALLED. IF ANY OF THE EXISTING SPARGE WELLS CREATE INTERFERENCE PROBLEMS, SEE DEMOLITION NOTE 11.
6. THE 71.0200 CONTRACTOR SHALL REMOVE THE IDENTIFIED EXISTING MANHOLES OR CATCH BASINS.
7. THE 71.0200 CONTRACTOR SHALL ABANDON IN PLACE THE IDENTIFIED EXISTING MANHOLES OR CATCH BASINS. ABANDONMENT SHALL CONSIST OF FILLING THE MANHOLE OR CATCH BASIN WITH LEAN CONCRETE.
8. THE 12 IDENTIFIED EXISTING INJECTION WELLS NEAR THE MIDDLE OF THE SITE WILL BE ABANDONED AND RELOCATED BY "ARCADIS". SITE WORK IN THIS AREA SHALL NOT COMMENCE UNTIL THE WELLS HAVE BEEN RELOCATED.
9. THE 71.0200 CONTRACTOR SHALL ABANDON THE 4 IDENTIFIED EXISTING MONITORING OR INJECTION WELLS. ABANDONMENT OF THE WELLS SHALL MEET THE REQUIREMENTS SET FORTH BY THE CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENT (CT DEEP) REGULATIONS.
10. THE 5 IDENTIFIED EXISTING MONITORING OR INJECTION WELLS NEAR THE MIDDLE OF THE SITE, AND THE 2 MONITORING WELL AMONGST THE SPARGE WELLS ON THE EAST SIDE OF THE SITE ARE TO REMAIN IN USE. THE 71.0200 CONTRACTOR SHALL DETERMINE AT LEAST ONE MONTH PRIOR TO THE START OF CONSTRUCTION, AND NOTIFY THE ENGINEER, IF ANY OF THESE WELLS INTERFERE WITH THE SITE WORK, AND IF THE TOP OF THE WELLS NEED TO BE EXTENDED TO THE NEW SITE CONTOURS. THE ENGINEER WILL THEN NOTIFY "ARCADIS" FOR RELOCATION OR MODIFICATIONS. ANY DAMAGE TO THESE WELLS CAUSED BY THE 71.0200 CONTRACTOR SHALL BE REPAIRED, AT NO COST TO THE OWNER, BY THE 71.0200 CONTRACTOR AND TO THE ACCEPTANCE OF "ARCADIS".
11. THE 6 EXISTING SPARGE WELLS ON THE EAST SIDE OF THE SITE MAY BE ABANDONED BY THE 71.0200 CONTRACTOR IF THEY INTERFERE WITH ANY NEW CONSTRUCTION. ABANDONMENT OF THE WELLS SHALL MEET THE REQUIREMENTS SET FORTH BY THE CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENT (CT DEEP) REGULATIONS. THE MONITORING WELL LOCATED AMONGST THESE SPARGE WELLS IS TO REMAIN IN USE IF AT ALL POSSIBLE. IF THE MONITORING WELL MUST BE MOVED, THEN THE ENGINEER SHALL BE ALERTED SO THAT "ARCADIS" CAN BE NOTIFIED FOR RELOCATION.
12. THE SHADED AREA IN THE NORTHEAST AND SOUTHERN PORTION OF THE SITE HAS NUMEROUS MONITORING WELLS, INJECTION WELLS, AND SPARGE WELLS THAT NEED TO REMAIN IN SERVICE. IF ANY OF THESE WELLS ARE DAMAGED BY THE 71.0200 CONTRACTOR, THEY WILL NEED TO BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER, "ARCADIS", AND THE OWNER. ALL COSTS ASSOCIATED WITH THESE REPAIRS OR REPLACEMENTS SHALL BE BORN BY THE 71.0200 CONTRACTOR. NOTE: MORE EXISTING WELLS ARE IN THE SHADED AREA THAN DEPICTED ON THIS DRAWING.
13. NOT USED
14. THE 71.0200 CONTRACTOR SHALL REMOVE THE IDENTIFIED EXISTING ASPHALT PAVEMENT. DISPOSAL OF THE MATERIAL SHALL BE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.
15. THE 71.0200 CONTRACTOR SHALL REMOVE ALL TREES, SHRUBS AND VEGETATION WITHIN SUBSTATION FOOTPRINT PRIOR TO PLACEMENT OF SITE BACKFILL.
16. THE 71.0200 CONTRACTOR FENCING REQUIREMENT ARE:
  - A. EXISTING FENCING TO BE REPAIRED AND MAINTAINED DURING CONSTRUCTION. THIS PORTION OF THE FENCING STARTS AT APPROX N 161739.00, E 498857.11 SOUTHWEST TO APPROX 161363.76, E 498918.23. AFTER SUBSTATION FENCING IS INSTALLED AND WITH THE APPROVAL OF THE BVCI FIELD CONSTRUCTION MANAGER SHALL BE REMOVED AND DISPOSE OF THE EXISTING FABRIC AND POLES.
  - B. EXISTING PERIMETER FENCING SHALL BE REPAIRED AS REQUIRED AND SHOULD MATCH EXISTING MATERIALS. STARTING AT APPROX N 161363.76, E 498891.23 NORTHEAST ENDING AT APPROX N 161739.00, E 498857.11.
  - C. NEW SUBSTATION FENCING SHOWN ON DRAWING 25252-014.
17. THE 71.0200 CONTRACTOR SHALL REMOVE FENCE AS REQUIRED TO ALLOW GRADING WORK TO BE DONE. AFTER GRADING WORK HAS BEEN COMPLETED THE 71.0200 CONTRACTOR SHALL INSTALL TEMPORARY CONSTRUCTION FENCING.

**LEGEND**

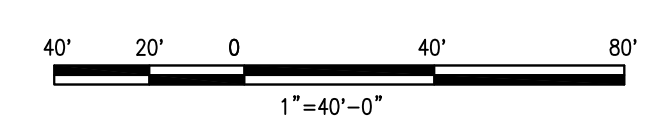
- — — — — EXISTING UNDERGROUND ELECTRICAL LINE
- — — — — EXISTING UNDERGROUND TELEPHONE LINE
- — — — — EXISTING UNDERGROUND WATER LINE
- (A) EXISTING MANHOLE OR CATCH BASIN TO BE REMOVED (BY CONTRACT 71.0200). SEE DEMOLITION NOTE 6.
- (B) EXISTING MANHOLE OR CATCH BASIN TO BE ABANDONED (BY CONTRACT 71.0200). SEE DEMOLITION NOTE 7.
- (C) EXISTING INJECTION WELL TO BE ABANDONED (BY "ARCADIS"). SEE DEMOLITION NOTE 8.
- (D) EXISTING MONITORING WELL TO BE ABANDONED (BY CONTRACT 71.0200). SEE DEMOLITION NOTE 9.
- (E) EXISTING MONITORING WELL THAT MUST REMAIN IN PLACE. SEE DEMOLITION NOTE 10.
- (F) EXISTING SPARGE WELL. SEE DEMOLITION NOTE 11.
- (G) EXISTING MONITORING WELL ALREADY ABANDONED BY OTHERS
- [Hatched Box] WELLS IN THIS AREA NEED TO REMAIN IN SERVICE SEE DEMOLITION NOTE 12.
- [Cross-hatched Box] ASPHALT PAVEMENT TO BE REMOVED

**PRELIMINARY**

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DEMOLITION PLAN

POOTATUCK SUBSTATION



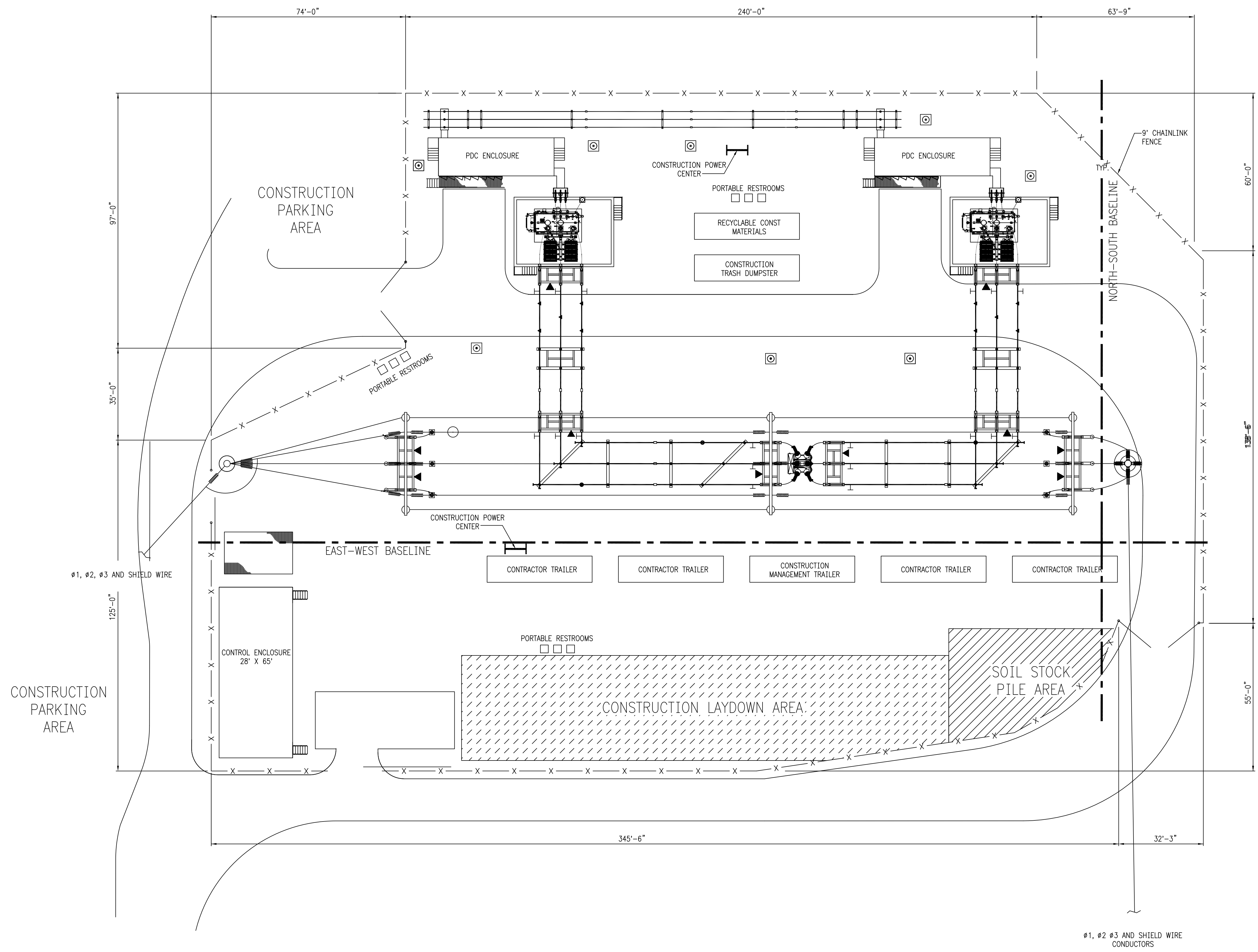
<b>BLACK &amp; VEATCH</b> Building a world of difference®	
PROJECT NO. 178262	
DRAWN	BD
DESIGNED	JAH
APPROVED	ALL
CHECKED	-

A	05/20/2013	ISSUED FOR D&M PLAN	BD	-	JAH	ALL
No.	Date	Revision	By	Chkd.	Engr.	Supv.

**The United Illuminating Company**

Drawn	Date 06/18/12	Scale: 1:40
Chkd.	Design Engr.	Design Supv.

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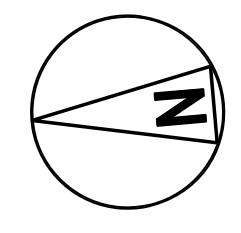
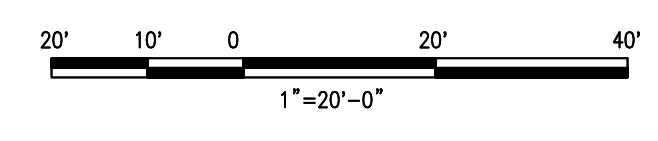


- NOTES:**
- PER CONNECTICUT STATE LAW THE CONTRACTOR SHALL CONFIRM THE LOCATION OF ALL UTILITIES PRIOR TO THE COMMENCEMENT OF EXCAVATION. CALL BEFORE YOU DIG 1-800-922-4455.
  - DELIVERIES FOR THE POOTATUCK SUBSTATION AT 14 OLD STRATFORD ROAD, SHELTON, CONNECTICUT WILL BE RECEIVED BETWEEN THE HOURS OF 8:00 AM AND 4:00 PM, MONDAY THRU FRIDAY.
  - ALL WORK SHOWN ON THIS DRAWING SHALL BE FURNISHED AND INSTALLED BY CONTRACT 73.0601, UNLESS NOTED OTHERWISE.

**REFERENCE DRAWINGS**

SUBSTATION ARRANGEMENT PLAN	XXXXX-400
SUBSTATION SECTION 1	XXXXX-401SH1
SUBSTATION SECTIONS	XXXXX-401SH2
SUBSTATION DETAILS	XXXXX-405SH1
SUBSTATION DETAILS	XXXXX-405SH2

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<b>BLACK &amp; VEATCH</b> Building a world of difference®	PROJECT NO. 178262
DRAWN BD	
DESIGNED MRH	
APPROVED ALL	A 05/20/2013 ISSUED FOR D&M PLAN
CHECKED -	No Date Revision

BD	-	MRH	ALL
Drawn	Date 07/05/2012	Scale: 1" = 20'	
By	Chkd. Engr. Supv.	Chkd.	Design Engr. Design Supv.



SUBSTATION CONSTRUCTION FACILITIES PLAN		
SHELTON SUBSTATION		
CAD FILE NAME	SEQUENCE No.	DRAWING NUMBER
		XXXXX-805



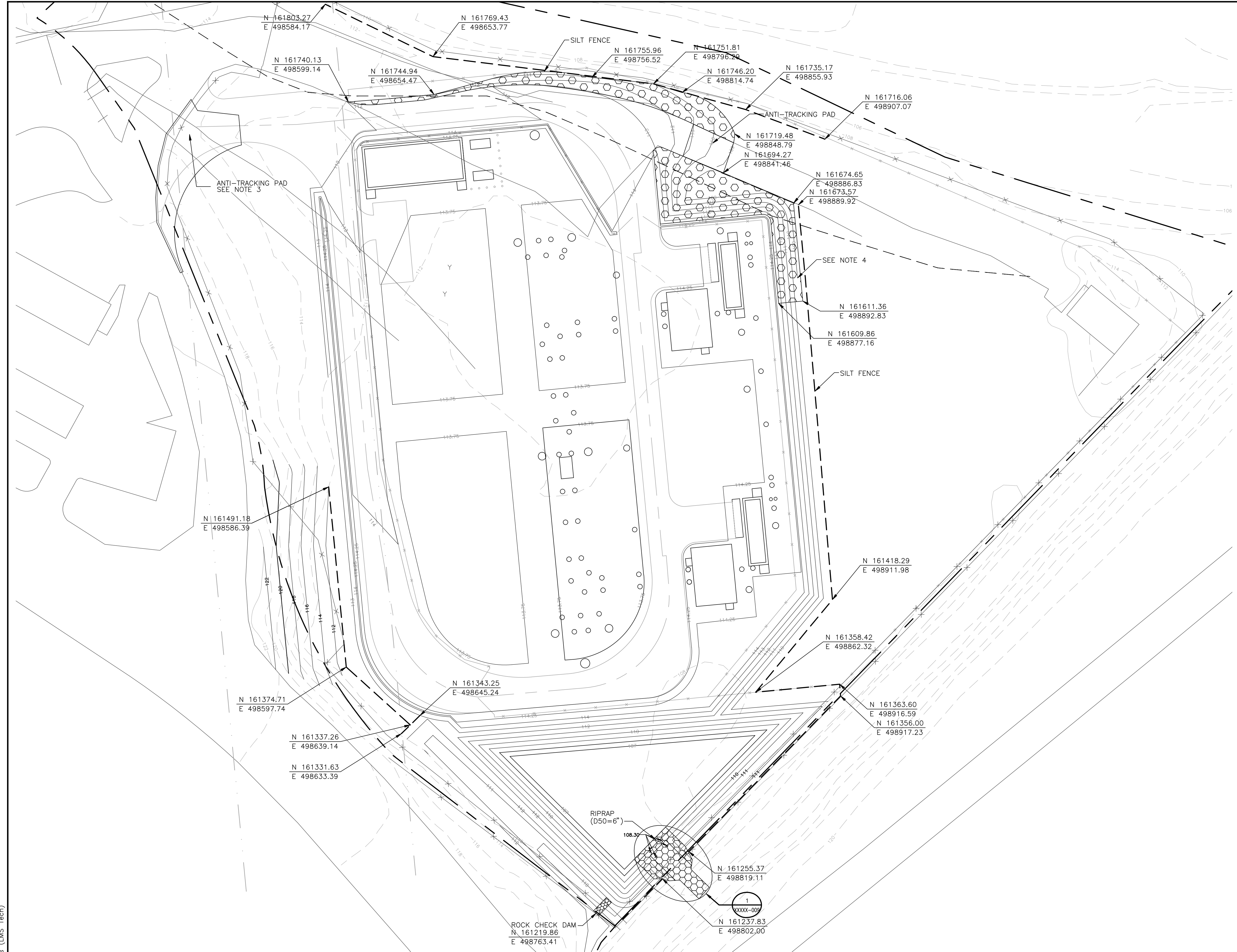
## APPENDIX B

### SOIL EROSION AND SEDIMENT CONTROL PLAN

DRAWING NUMBER	DRAWING TITLE
XXXXX-006	SHELTON SUBSTATION EROSION CONTROL – SITE PLAN
XXXXX-008	SHELTON SUBSTATION EROSION CONTROL – SITE EROSION CONTROL DETAILS

NOTES

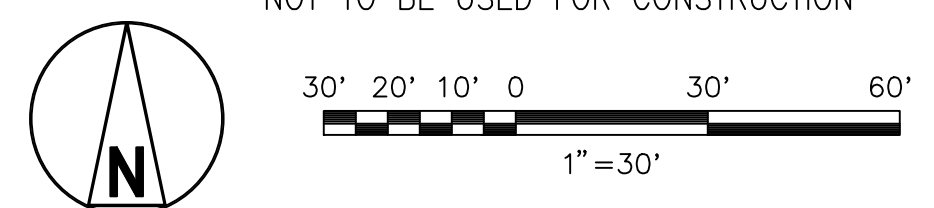
1. SEE DWG XXXX-003 FOR GENERAL NOTES, KEY PLAN AND ABBREVIATIONS.
2. SEE DWG XXXX-008 FOR SILT FENCE DETAILS.
3. TWO ANTI TRACKING PADS. FIELD LOCATE BY BVCI FIELD CONSTRUCTION MANAGER. SEE DWG XXXX-008 FOR DETAILS.



REFERENCE DRAWINGS

GRADING AND DRAINAGE PLAN	XXXXX-003 THRU 005
EROSION CONTROL PLAN & DETAILS	XXXXX-006 & 008
CATCH BASIN SCHEDULE & DETAILS	XXXXX-007
GRADING AND DRAINAGE DETAILS	XXXXX-009
SURFACING AND FENCING PLAN	XXXXX-014
UNDERGROUND UTILITIES PLAN & DETAILS	XXXXX-015 & 017
ROADS AND PARKING PLAN	XXXXX-016

**PRELIMINARY**  
NOT TO BE USED FOR CONSTRUCTION



PROJECT NO. 178262

DRAWN	RMG	3	05/20/13	ISSUED FOR D&M PLAN	RRH	-	SMR	-
DESIGNED	SMR	2	04/19/13	ISSUED FOR D&M PLAN	RRH	-	SMR	-
APPROVED	ALL	1	01/10/13	PRE-FILE TESTIMONY ISSUE	RRH	-	SMR	-
CHECKED	-	0	04/30/12	MCF REVIEW ISSUE	RMG	-	SMR	-

No	Date	Revision	By	Chkd.	Engr.	Supv.
1						

**The United Illuminating Company**

Drawn	RMG	Date	04/30/12	Scale:	1:30
Chkd.	-	Design Engr.	SMR	Design Supv.	-

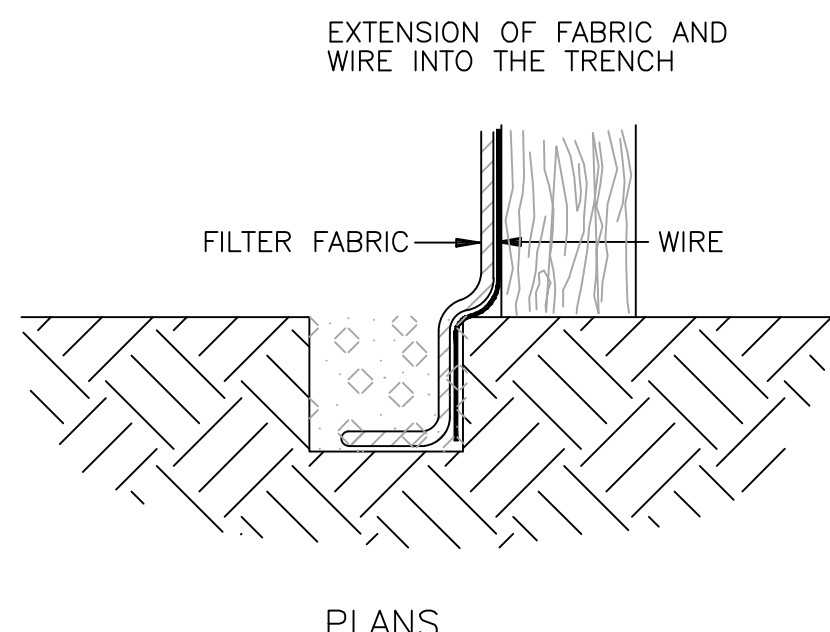
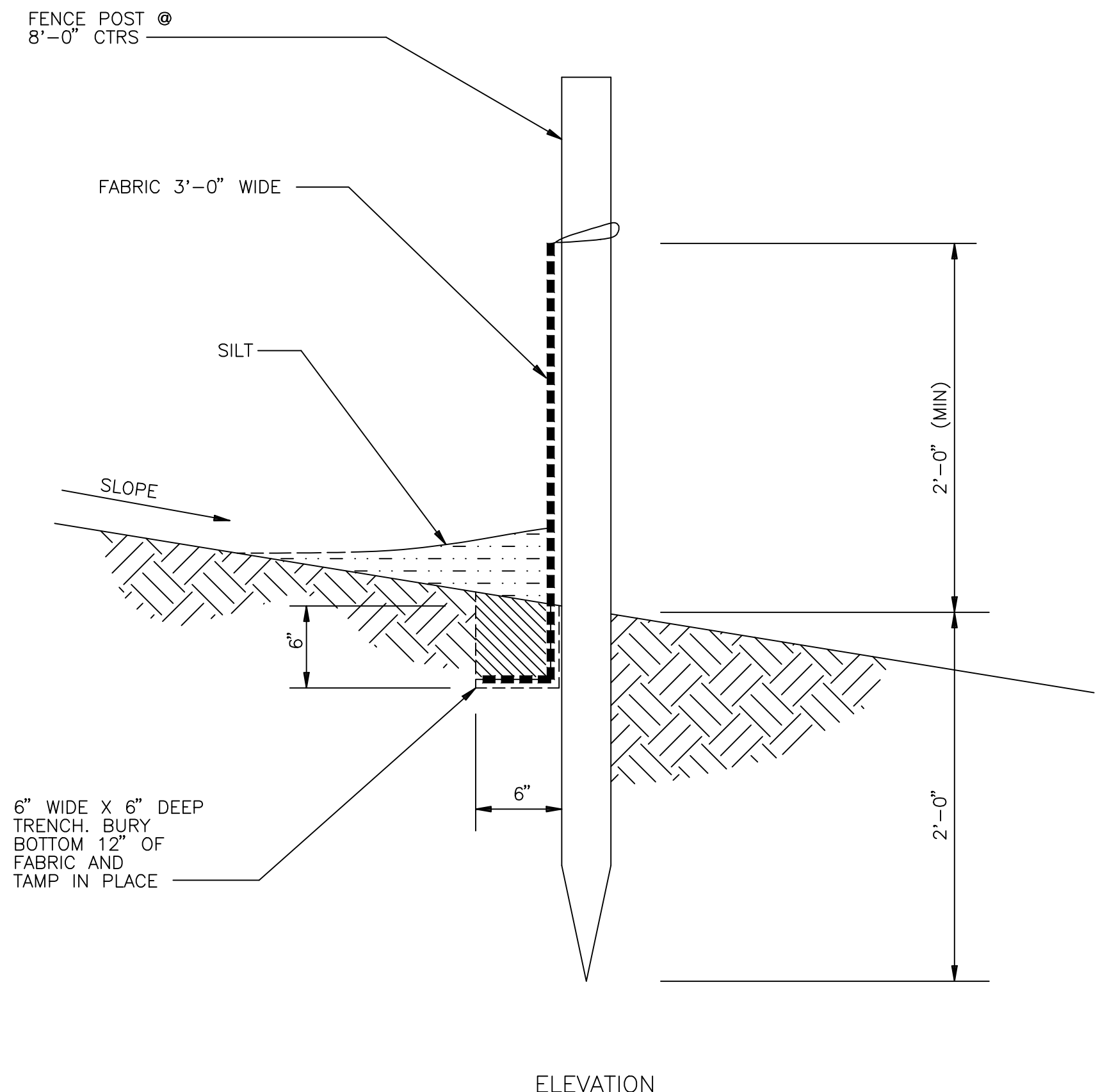
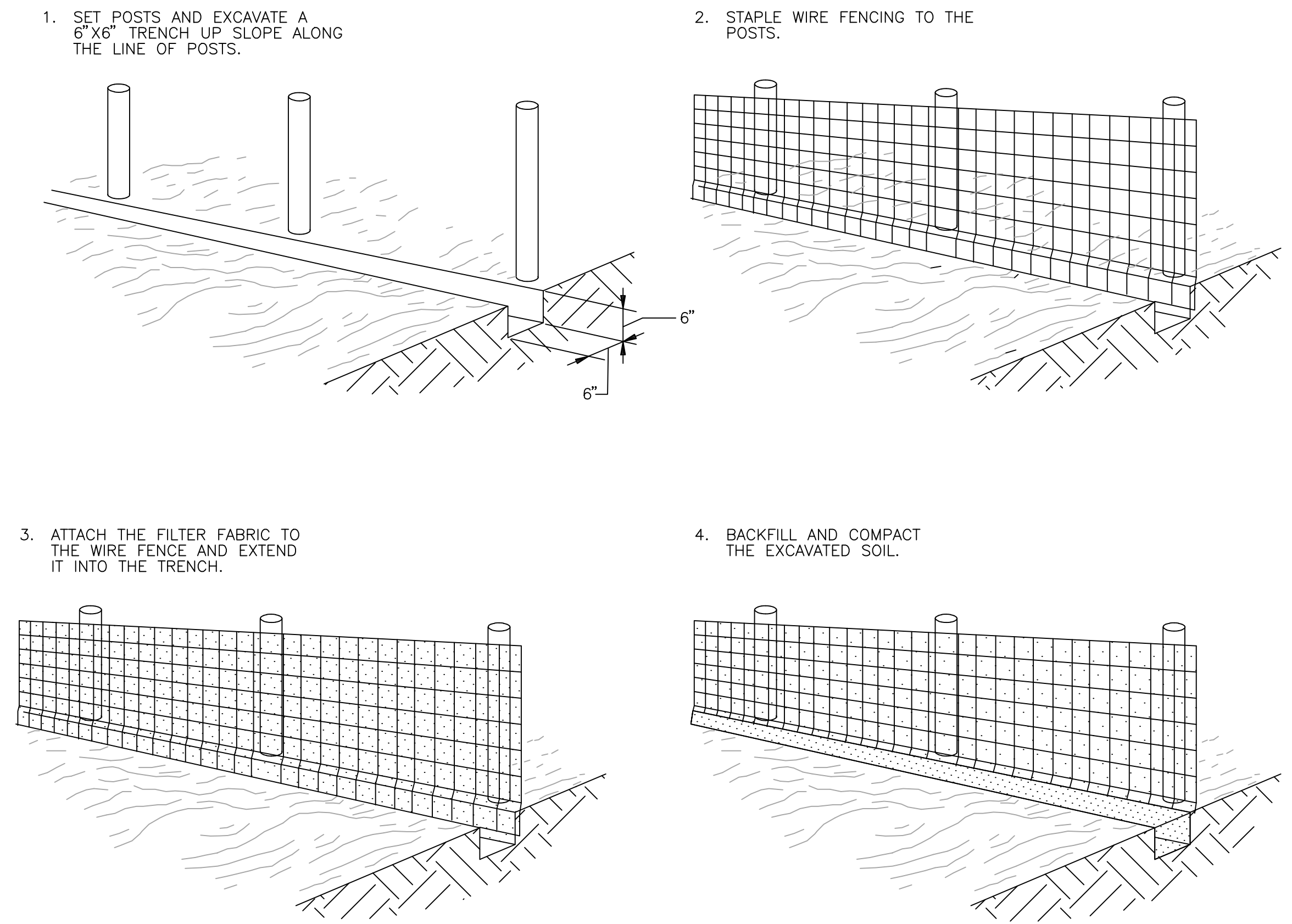
EROSION CONTROL - SITE PLAN  
SHELTON SUBSTATION

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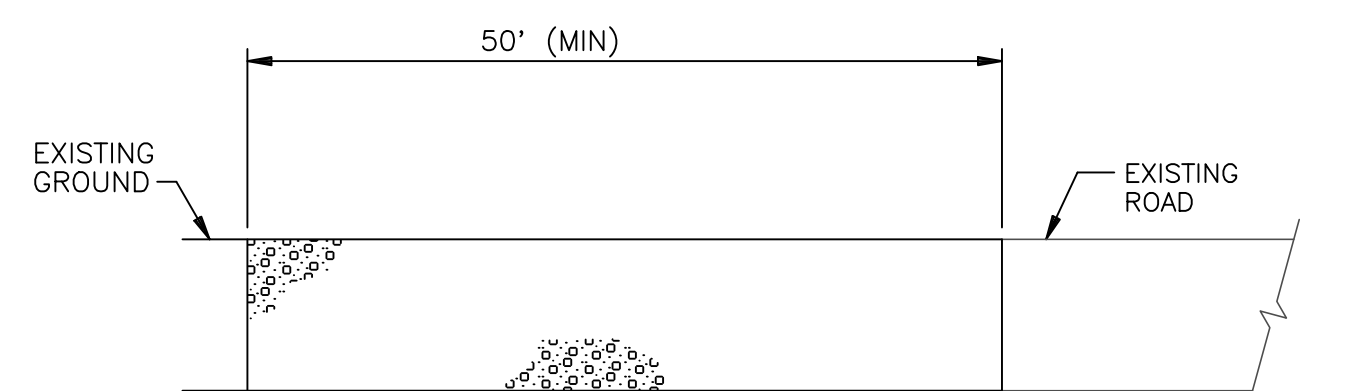
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NOTES

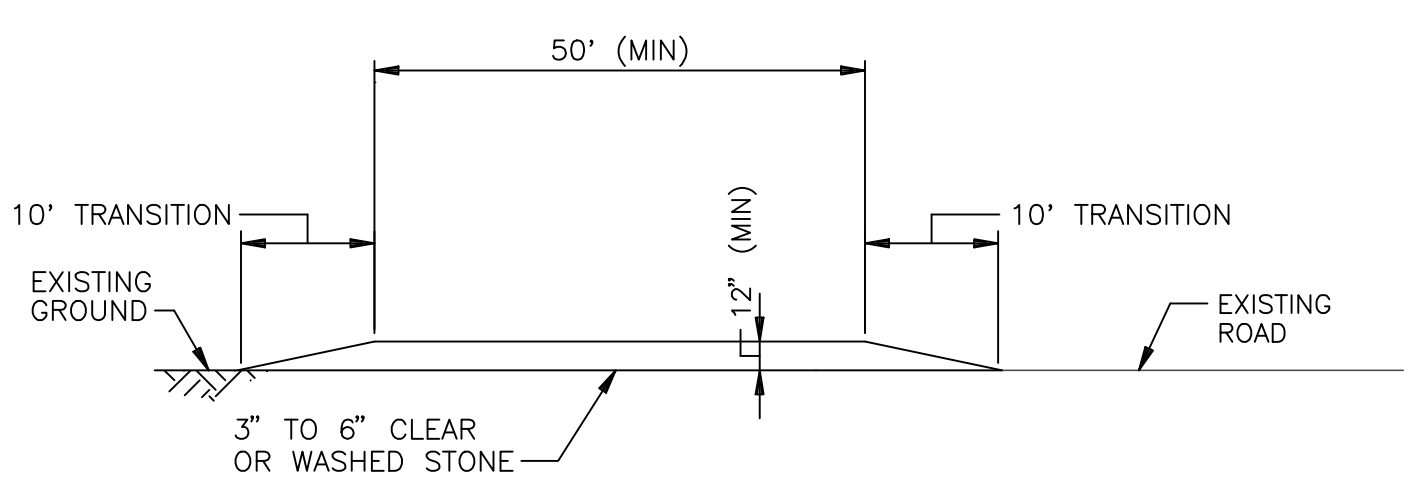
1. SEE DWG XXXX-003 FOR GENERAL NOTES, KEY PLAN AND ABBREVIATIONS.
2. SEE DWG XXXX-006 FOR EROSION CONTROL PLAN INFORMATION.
3. STONE SIZE FOR ROCK CHECK DAM SHALL BE IN ACCORDANCE WITH THE CONDOT STANDARD SPECIFICATIONS SECTION M.01.01 FOR NO. 3 AGGREGATE.  
CONTRACTOR SHALL PLACE A 12" LAYER OF MODIFIED RIPRAP OVER NO. 3 AGGREGATE USED FOR ROCK CHECK DAM. MODIFIED RIPRAP SHALL MEET SPECIFICATIONS LISTED IN CONDOT STANDARD SPECIFICATIONS SECTION M.12.01
4. TRACKING PAD SHALL BE INSTALLED PRIOR TO ANY TRAFFIC LEAVING SITE. TRACKING PAD SHALL BE FULL WIDTH OF ROAD OR EGRESS POINT. A MINIMUM 12" THICK PAD SHALL BE MAINTAINED.
5. DESIGN CRITERIA FOR TRACKING PAD.
  - A. WIDTH - NOT LESS THAN FULL WIDTH OF POINTS OF INGRESS OR EGRESS.
  - B. LENGTH - 50 FEET MINIMUM WHERE THE SOILS ARE SANDS OR GRAVEL OR 100 FEET MINIMUM WHERE SOILS ARE CLAYS OR SILTS, EXCEPT WHERE THE TRAVELED LENGTH IS LESS THAN 50 OR 100 FEET RESPECTIVELY. THESE LENGTHS MAY BE INCREASED WHERE FIELD CONDITIONS DICTATE.
  - C. FILTER CLOTH - WILL BE PLACED OVER ENTIRE AREA PRIOR TO PLACING OF STONE AND SHALL BE MIRAFI 500X OR EQUIVALENT.
  - D. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ON TO PUBLIC RIGHT-OF-WAY THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR ADDITIONAL LENGTH AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED IMMEDIATELY.



SILT FENCE DETAIL  
NOT TO SCALE

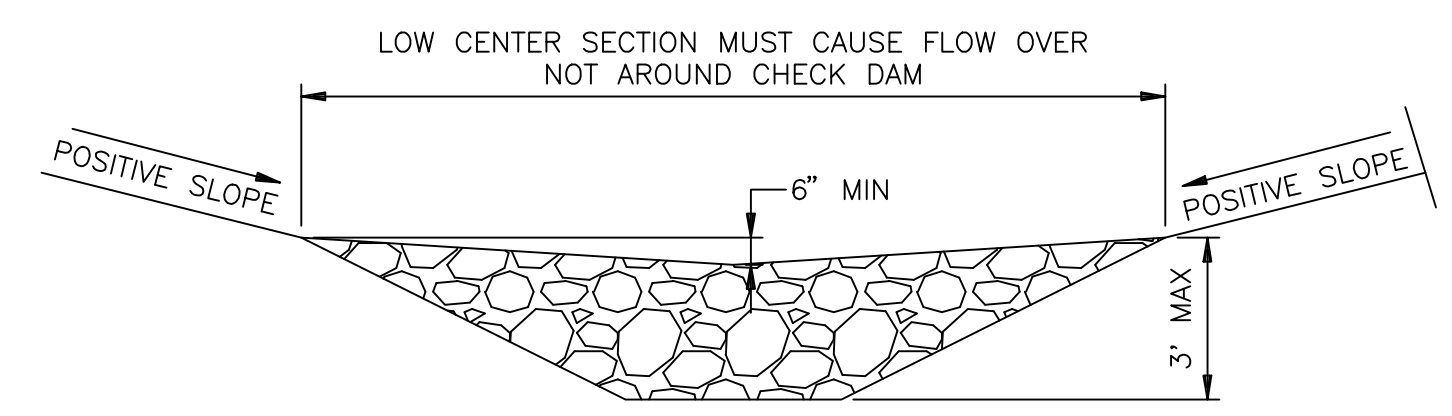


PLAN VIEW

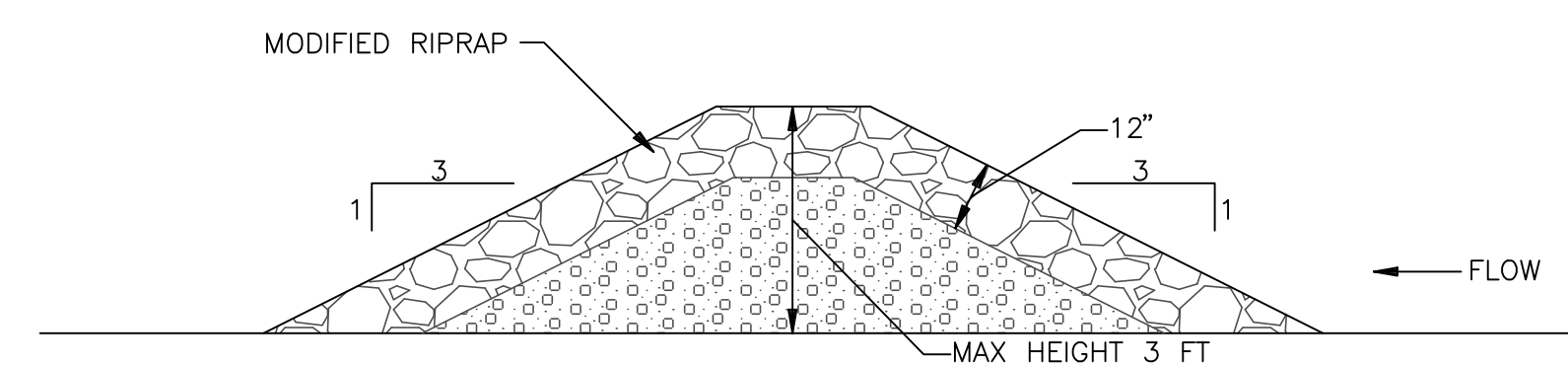


PROFILE

TYPICAL STONE TRACKING PAD  
NO SCALE  
SEE NOTE 4 & 5



CROSS SECTION



PROFILE

ROCK CHECK DAM  
NO SCALE  
SEE NOTE 2 & 3

REFERENCE DRAWINGS

GRADING AND DRAINAGE PLAN	XXXX-003 THRU 005
EROSION CONTROL PLAN & DETAILS	XXXX-006 & 008
CATCH BASIN SCHEDULE & DETAILS	XXXX-007
GRADING AND DRAINAGE DETAILS	XXXX-009
SURFACING AND FENCING PLAN	XXXX-014
UNDERGROUND UTILITIES PLAN & DETAILS	XXXX-015 & 017
ROADS AND PARKING PLAN	XXXX-016

**PRELIMINARY**  
NOT TO BE USED FOR CONSTRUCTION

<b>BLACK &amp; VEATCH</b> Building a world of difference®		PROJECT NO. 178262	
DRAWN	RMG	3	05/20/13 ISSUED FOR D&M PLAN
DESIGNED	SMR	2	04/19/13 ISSUED FOR D&M PLAN
APPROVED	ALL	1	01/10/13 PRE-FILE TESTIMONY ISSUE
CHECKED	-	0	04/30/12 MCF REVIEW ISSUE
No	Date	Revision	By



EROSION CONTROL - SITE  
EROSION CONTROL DETAILS  
SHELTON SUBSTATION

Drawn	RMG	Date	04/30/12	Scale:	-
Chkd.	-	Design Engr.	SMR	Design Supv.	-
CAD FILE NAME	SEQUENCE No.	DRAWING NUMBER		XXXX-008	

**APPENDIX C**  
**D&M PLAN CHECKLIST FOR SHELTON SUBSTATION**  
(Regulations of Connecticut State Agencies Sections 16-50j-60, -61 and -62)

R.C.S.A SECTION	DESCRIPTION	LOCATION ADDRESSED IN D&M PLAN (SECTION NO.)
<b>16-50j-60</b>	<b>Requirements for a D&amp;M Plan</b>	
<b>(a)</b>	<b>Purpose.</b> The Council may require the preparation of full or partial D&M Plans for proposed energy facilities, modifications to existing energy facilities, or where the preparation of such a plan would help significantly in balancing the need for adequate and reliable utility services at the lowest reasonable cost to consumers with the need to protect the environment and the ecology of the state.	<b>Section 1</b>
<b>(b)</b>	<b>When required.</b> A partial or full D&M plan shall be prepared in accordance with this regulation and shall include the information described in Sections 16-50j-61 to 16-50j-62, inclusive, of the Regulations of Connecticut State Agencies, for any proposed energy facility for which the Council issues a certificate of environmental compatibility and public need, except where the Council provides otherwise at the time it issues the certificate. Relevant information in the Council's record may be referenced.	<b>Section 1</b>
<b>(c)</b>	<b>Procedure for preparation.</b> The D&M plan shall be prepared by the certificate holder or the owner or operator of the proposed facility or modification to an existing facility. The preparer may consult with the staff of the Council to prepare the D&M plan.	<b>Section 1</b>
<b>(d)</b>	<b>Timing of plan.</b> The D&M plan shall be submitted to the Council in one or more sections, and the Council shall approve, modify, or disapprove each section of the plan not later than 60 days after receipt of it. If the Council does not act to approve, modify or disapprove the plan or a section thereof within 60 days after receipt of it, the plan shall be deemed approved. Except as otherwise authorized by the Council, no clearing or construction shall begin prior to approval of applicable sections of the D&M plan by the Council.	<b>Section 1</b>
<b>16-50j-61</b>	<b>Elements of D&amp;M Plan</b>	
<b>(a)</b>	<b>Key Map,</b> 1"=2,000' USGS topographic map	<b>Section 3; Appendix A</b>
<b>(b)</b>	<b>Plan Drawings,</b> 1"=100' or larger, and supporting documents, which shall contain the following information:	<b>Section 3; Appendix A</b>
<b>1.</b>	Edges of the proposed site and any existing site contiguous to or crossing the site, portions of the site owned by the	<b>Section 3</b>

<b>R.C.S.A SECTION</b>	<b>DESCRIPTION</b>	<b>LOCATION ADDRESSED IN D&amp;M PLAN (SECTION NO.)</b>
	company in fee, and the identity of property owners of record of the portions of the site not owned by the company in fee	
<b>2.</b>	Public roads and public land crossings or adjoining the site	<b>Section 3</b>
<b>3.</b>	Location of 50' contours along the site	<b>Section 3; Appendix A</b>
<b>4.</b>	Probable location, type, and height of the proposed facility and components (including each new transmission structure, position of guys, description of foundations, and locations of any utility or other structures to remain on the site or to be removed	<b>Sections 2 and 3; Appendix A</b>
<b>5.</b>	Probable points of access to the site, and the route and likely nature of accessways, including alternatives	<b>Sections 3 and 4</b>
<b>6.</b>	Edges of existing and proposed clearing areas, the type of proposed clearing along each part of the site, and the location and species identification of vegetation that would remain for aesthetic and wildlife value	<b>Section 3</b>
<b>7.</b>	Identification of sensitive areas and conditions within and adjoining the site, including but not limited to:	<b>Section 3</b>
	A. Wetland and watercourse areas regulated under C.G.S. Chapter 440 and any locations where construction may create drainage problems	<b>Section 3</b>
	B. Areas of high erosion potential	<b>N/A (refer to Section 3)</b>
	C. Critical habitats or areas identified as having rare, endangered, or threatened, or special concern plant or animal species listed by the state or federal government	<b>N/A (refer to Section 3)</b>
	D. Location of known underground utilities or resources to be crossed (electric lines, fuel lines, drainage systems and natural or artificial public or private water resources)	<b>Section 3</b>
	E. Residences or businesses within or adjoining the site that may be disrupted during construction	<b>Section 3</b>
	F. Significant environmental, historic and ecological features (significantly large or old trees, buildings, monuments, stone walls or features of local interest)	<b>N.A (refer to Section 3)</b>
<b>(c)</b>	<b>Supplemental Information</b>	
<b>1.</b>	Plans (if any) to salvage marketable timber, restore habitat and maintain snag trees within or adjoining the site	<b>Section 3</b>
<b>2.</b>	All construction and rehabilitation procedures with	<b>Section 3</b>

<b>R.C.S.A SECTION</b>	<b>DESCRIPTION</b>	<b>LOCATION ADDRESSED IN D&amp;M PLAN (SECTION NO.)</b>
	<p>reasonable mitigation that shall be taken to protect areas and conditions identified in 7(b), above, including but not limited to:</p> <ul style="list-style-type: none"> <li>A. Construction techniques at wetland and watercourse crossings</li> <li>B. S &amp; E control and rehabilitation procedures, consistent with the CT Guidelines for Soil Erosion and Sediment Control, as updated and amended for areas of high erosion potential</li> <li>C. Precautions and all reasonable mitigation measures to be taken in areas within or adjoining the site to minimize any adverse impacts of such actions or modifications on E, T, or special concern plant or animal species listed by federal or state agencies and critical habitats that are in compliance with federal and state recommended standards and guidelines, as amended</li> <li>D. Plans for modification and rehabilitation of surface, drainage, and other hydrologic features</li> <li>E. Plans for watercourse bank restoration in accordance with Chapter 440 of the C.G.S.</li> <li>F. Plans for the protection of historic and archaeological resources with review and comment from a state historic preservation officer of the CT DECD or its successor agency</li> </ul>	<p>N/A</p> <p>Appendix B</p> <p>N/A</p> <p>Appendix A</p> <p>N/A</p> <p>N/A</p>
<b>3.</b>	Plans for the method and type of vegetation clearing and maintenance to be used within or adjacent to the site	<b>Section 3</b>
<b>4.</b>	Location of public recreation areas or activities known to exist or being proposed in or adjacent to the site, together with copies of agreements between the company and public agencies authorizing the public recreation use of the site to the extent of the company's rights thereto	<b>Section 3</b>
<b>5.</b>	Plans for ultimate disposal of excess excavated material, stump removal, and periodic maintenance of the site	<b>Section 3</b>
<b>6.</b>	Locations of areas where blasting is anticipated	<b>Section 3</b>
<b>7.</b>	Rehabilitation plans, including but not limited to reseeding and topsoil restoration	<b>Section 3</b>
<b>8.</b>	Contact information for the personnel of the contractor assigned to the project	<b>Section 3</b>
<b>9.</b>	Such site-specific information as the CSC may require	<b>Section 3</b>
<b>(d)</b>	<p><b>Notice</b></p> <p>A copy, or notice of the filing, of the D&amp;M Plan, or a copy, or notice of the filing of any changes to the D&amp;M Plan, or any section thereof, shall be provided to the service list and the</p>	<b>If applicable; refer to Section 4</b>

<b>R.C.S.A SECTION</b>	<b>DESCRIPTION</b>	<b>LOCATION ADDRESSED IN D&amp;M PLAN (SECTION NO.)</b>
	property owner of record, if applicable, at the same time the plan, or any section thereof, is submitted to the CSC	
<b>(e)</b>	<b>Changes to the Plan</b> The CSC may order changes to the D&M plan, including but not limited to vegetative screening, paint color, or fence design at any time during the preparation of the plan	<b>If applicable; refer to Section 4</b>
<b>16-50j-62</b>	<b>Supplemental Reporting Requirements</b>	
<b>(a)</b>	<b>Site Testing and Staging Areas</b> The certificate holder, or facility owner or operator, shall provide the CSC with written notice of the location and size of all areas to be accessed or used for site testing or staging areas. If such an area is to be used prior to approval of the D&M plan, the CSC may approve such use on terms as it deems appropriate.	<b>Section 3</b>
<b>(b)</b>	<b>Notice</b>	<b>Section 4</b>
<b>1.</b>	The certificate holder, or facility owner or operator, shall provide the CSC, in writing with a minimum of two weeks advance notice of the beginning of:	
	A. Clearing and access work in each successive portion of the site, and	
	B. Facility construction in that same portion	
<b>2.</b>	The certificate holder, or facility owner or operator, shall provide the CSC with advance written notice whenever a significant change of the approved D&M plan is necessary. If advance written notice is impractical, verbal notice shall be provided to the CSC immediately and shall be followed by written notice not later than 48 hours after the verbal notice. Significant changes to the approved D&M plan shall include, but not be limited to, the following:	
	A. The location of wetland or watercourse crossing	
	B. The location of an accessway or structure in a regulated wetland or watercourse area	
	C. The construction or placement of any temporary structures or equipment	
	D. A change in structure type or location including, but not limited to, towers, guy wires, associated equipment or other facility structures	
	E. Utilization of additional mitigation measure, or	

R.C.S.A SECTION	DESCRIPTION	LOCATION ADDRESSED IN D&M PLAN (SECTION NO.)
	elimination of mitigation measures. The CSC or its designee shall promptly review the changes and shall approve, modify, or disapprove the changes in accordance with subsection (d) of Section 16-50j-60 of the RCSA	
3.	The certificate holder, or facility owner or operator, shall provide the CSC with a monthly construction progress report or a construction progress report at intervals determined by the CSC or its designee, indicating changes and deviations from the approved D&M Plan. The CSC may approve changes and deviations, request corrections, or require mitigation measures.	
4.	The certificate holder, or facility owner or operator, shall provide the CSC with written notice of completion of construction and site rehabilitation.	
(c)	<p><b>Final Report</b></p> <p>The certificate holder, or facility owner or operator, shall provide the CSC with a final report for the facility not later than 180 days after completion of all site construction and site rehabilitation. The report shall identify:</p>	
1.	All agreements with abutters or other property owners regarding special maintenance precautions	
2.	Significant changes of the D&M plan that were required because of property rights of underlying and adjoining owners for other reasons	
3.	The location of construction materials which have been left in place including, but not limited to, culverts, erosion control structures along watercourses and steep slopes, and corduroy roads in regulated wetlands	
4.	The location of areas where special planting and reseeding have been done	
5.	The actual construction cost of the facility, including but not limited to the following costs:	
	A. Clearing and access	
	B. Construction of the facility and associated equipment	
	C. Rehabilitation; and	
	D. Property acquisition for the site or access to the site	
(d)	<p><b>Protective Order</b></p> <p>The certificate holder, or facility owner or operator, may file a motion for protective order pertaining to commercial or financial information related to the site or access to the site.</p>	N/A