APPENDIX E

CONSTRUCTION DRAWINGS

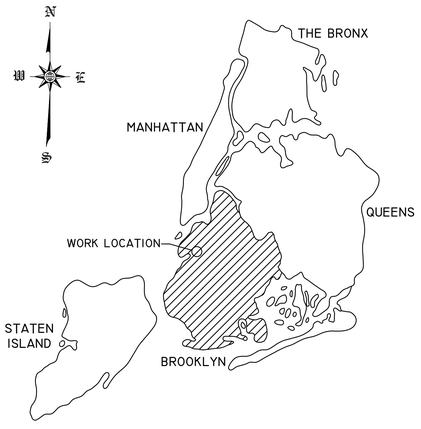
Department of Design and Construction

DIVISION OF INFRASTRUCTURE
BUREAU OF DESIGN

PROJECT ID: PW77GOWAN

EXCAVATION AND CAPPING OF FILLED FIRST STREET TURNING BASIN - GOWANUS CANAL

BOROUGH OF BROOKLYN
CITY OF NEW YORK



LOCATION PLAN
N.T.S.

PROJECT SITE

SUBMITTED BY:

AKRF KSE
The AKRF-KSE JV

PREPARED BY:

ARCADIS
MNLA
MRCE
built on firm foundations

0 1 2 3 4
ORIGINAL SIZE IN INCHES

NO.	DATE	DESCRIPTIONS	BY	APPR'D
		REVISIONS		

FINAL DESIGN SUBMITTED BY:
AKRF KSE
The AKRF-KSE JV

CITY OF NEW YORK
DEPARTMENT OF DESIGN + CONSTRUCTION
DIVISION OF INFRASTRUCTURE
BUREAU OF DESIGN

TITLE SHEET

DRAWN BY
80468 Title Sheet.dwg
CADD FILE

FIRST STREET TURNING BASIN
GOWANUS CANAL
BROOKLYN, NEW YORK

CAPITAL PROJECT NO. PW77GOWAN 03/28/19

SHEET 1 OF 32 --

TABLE OF CONTENTS

NO.	DATE	DESCRIPTIONS	BY	APPR'D
		REVISIONS		

FINAL DESIGN SUBMITTED BY:

AKRF | KSE
The AKRF-KSE JV

CITY OF NEW YORK
DEPARTMENT OF DESIGN + CONSTRUCTION
DIVISION OF INFRASTRUCTURE
BUREAU OF DESIGN

TABLE OF CONTENTS

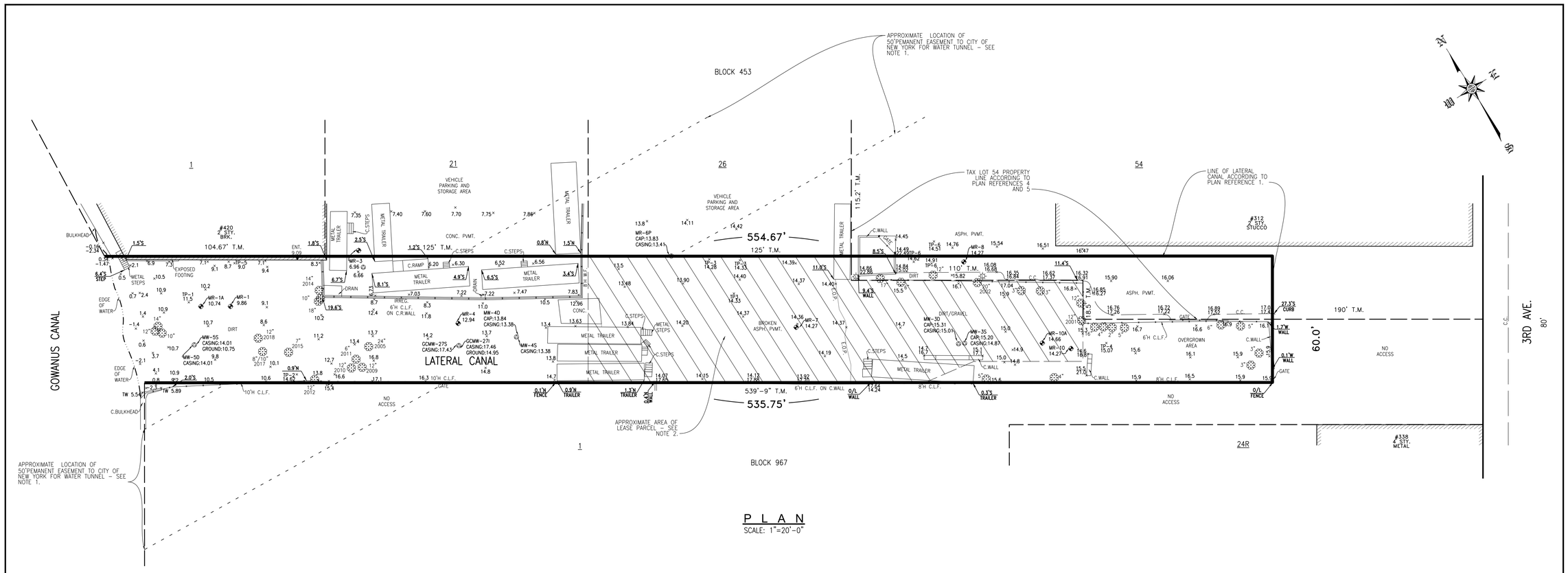
DRAWN BY

80468 TOC.DWG
CADD FILE

FIRST STREET TURNING BASIN
GOWANUS CANAL
BROOKLYN, NEW YORK

CAPITAL PROJECT NO. PW77GOWAN 03/28/19

SHEET 2 OF 32



PLAN
SCALE: 1"=20'-0"

REFERENCE PLANS:

1. PLAN TITLED "GOWANUS CANAL/LATERAL CANAL" DATED 11/21/00 PREPARED FOR BUREAU OF SITE ENGINEERING TOPOGRAPHICAL SECTION (PROVIDED TO BTA BY DDC).
2. ARCHITECTURAL SURVEY OF BLOCK 453, LOTS 1 & 21, DATED 6/13/2016, AMENDED ON 7/7/2016 PERFORMED BY LEONARD J. STRANDBERG AND ASSOCIATES (PROVIDED TO BTA BY AKRF).
3. ARCHITECTURAL SURVEY OF BLOCK 967 LOT 1, DATED FEBRUARY 2, 2013 (SOUTH PROPERTY LINE STAKEOUT FEBRUARY 7, 2017) PERFORMED BY PERFECT POINT LAND SURVEYING RT (PROVIDED TO BTA BY AKRF).
4. FINAL SURVEY OF BLOCK 453 LOT 54, DATED MARCH 11, 2004, REVISED JUNE 18, 2004, PERFORMED BY BARRY M. FAHER (SUPPLIED TO BTA BY BROOKLYN BUILDING DEPARTMENT).
5. ALTA/ACSM LAND TITLE SURVEY BLOCK 353, LOT 54, DATED 3/21/2002, PERFORMED BY JOHN P. FERRANTELLO, PC (SUPPLIED TO BTA BY BROOKLYN BUILDING DEPARTMENT).
6. UNTITLED SURVEY OF BLOCK 967 LOTS 1 AND 50, DATED 8/12/1986, PERFORMED BY ALBERT A. BIANCO (SUPPLIED TO BTA BY BROOKLYN BUILDING DEPARTMENT).
7. SURVEY TITLED "PROPOSED SECURITY WALL, BROOKLYN, NY – BLOCK 967 LOT1" DATED 3/23/1978, PERFORMED BY PIERRE R. FOSS, P.E. (SUPPLIED TO BTA BY BROOKLYN BUILDING DEPARTMENT).

NOTES

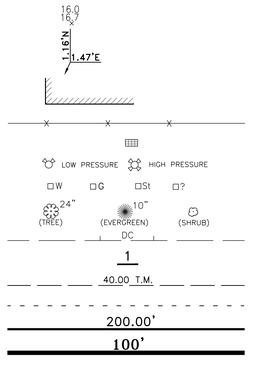
1. WATER TUNNEL EASEMENT PLACEMENT PERFORMED BY GRAPHICAL METHODS ONLY – EXACT POSITION HAS NOT BEEN ESTABLISHED.
2. LEASE PARCEL TAKEN FROM REVOCABLE LICENSE AGREEMENT BETWEEN THE CITY OF NEW YORK DEPARTMENT OF CITYWIDE ADMINISTRATIVE SERVICES AND TBD FIVE MANAGEMENT INC, SUPPLIED TO BTA BY DCAS. LIMITS OF LEASE PARCEL ARE NOT WELL DESCRIBED IN THAT DOCUMENT AND MAY BE SUBJECT TO INTERPRETATION.

NOTES:

1. ALL ELEVATIONS SHOWN ON THIS SURVEY REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). TO CONVERT THIS DATUM TO BROOKLYN HIGHWAY DATUM, SUBTRACT 1.460 FEET FROM EACH ELEVATION. ELEVATIONS WERE ESTABLISHED USING A COMBINATION OF REDUNDANT RTK GPS OBSERVATIONS AND DIFFERENTIAL SPIRIT LEVELING.
2. BEARING SYSTEM IN KEEPING WITH THE NEW YORK STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM 1983 (NAD83)(2011) LONG ISLAND ZONE, EPOCH: 2010, OBTAINED USING REDUNDANT RTK OBSERVATIONS REFERENCING THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION REAL TIME NETWORK.
3. ALL SUBSURFACE INFORMATION SHOWN IS TAKEN FROM VARIOUS MAPS AND IS NOT GUARANTEED FOR ACCURACY OR COMPLETENESS. CONSULT WITH THE APPROPRIATE UTILITY COMPANY PRIOR TO ANY DESIGN IMPROVEMENTS.
4. ALL DIMENSIONS SHOWN ARE IN THE U.S. STANDARD OF MEASUREMENT.
5. ALL ENCROACHMENTS SHOWN TO POLES OR TREES REFER TO THE CENTER OF SAME.
6. SITE COMPRISES: FIRST STREET TURNING BASIN AS SHOWN ON THE "TAX MAP" OF THE CITY OF NEW YORK.
7. FIELD SURVEY COMPLETED: 10/04/2017.
8. "ONLY COPIES FROM THE ORIGINAL OF THIS SURVEY MARKED WITH AN ORIGINAL OF THE LAND SURVEYOR'S BLUE INKED OR EMBOSSED SEAL SHALL BE CONSIDERED TO BE A TRUE VALID COPY"
9. "UNAUTHORIZED ALTERATIONS OR ADDITION TO A LAND SURVEYING DRAWING BEARING A LICENSED PROFESSIONAL LAND SURVEYOR'S SEAL IS A VIOLATION OF ARTICLE 145, SECTION 7209 PARAGRAPH 2 OF THE NEW YORK STATE EDUCATION LAW"
10. ALL INFORMATION ON THIS MAP, EXCEPT THAT PERTAINING TO THE PROPERTY LINE, IS FOR REFERENCE ONLY.
11. THIS IS TO CERTIFY THAT THERE ARE NO VISIBLE STREAMS OR VISIBLE NATURAL WATER COURSES ACROSS THE PROPERTY AS SHOWN ON THIS SURVEY.

LEGEND

- EXISTING ELEVATION
- OFFSETS
- BUILDING
- FENCE
- CATCHBASIN
- FIRE HYDRANT
- VALVE
- TREE & TRUNK DIAMETER
- DEPRESSED CURB
- TAX LOT NUMBER
- TAX LOT LINE & DIMENSION
- EASEMENT LINE
- STREET LINE & DIMENSION
- SITE LINE & DIMENSION



SYMBOLS

MANHOLES

- (S) SEWER
- (E) ELECTRIC
- (St) STEAM
- (Su) SUBWAY
- (Mh) MANHOLE (NO ID)
- (S) FROM RECORD MAP
- (W) WATER
- (G) GAS
- (F) N.Y.F.D.
- (T) TELEPHONE
- (E) BECO or CTES
- (C) CABLE TV IRON

- OTS TRAFFIC SIGN
- PARKING METER
- CC COAL CHUTE
- VENT PIPE
- F FIRE ALARM BOX
- TRAFFIC CONTROL BOX
- MM MUNI METER
- EB ELECTRIC BOX
- FILL OIL FILL
- MONUMENT
- STANDPIPE
- SPRINKLER
- ROUND DRAIN
- SQUARE DRAIN
- SIGN
- BORING HOLE
- MONITORING WELL
- LINKNYC WIFI

- GUY WIRE
- T TRAFFIC SIGNAL
- PS PEDESTRIAN SIGNAL
- TPS TRAFFIC SIGNAL W/PEDESTRIAN SIGNAL
- WOOD UTILITY POLE
- F WOOD UTILITY POLE W/FIRE ALARM BOX
- PS WOOD UTILITY POLE W/PEDESTRIAN SIGNAL
- T WOOD UTILITY POLE W/TRAFFIC SIGNAL
- TPS WOOD UTILITY POLE W/TRAFFIC SIGNAL & PED. SIGNAL
- WOOD UTILITY POLE W/STREET LIGHT
- F WOOD UTILITY POLE W/STREET LIGHT & FIRE ALARM BOX
- PS WOOD UTILITY POLE W/STREET LIGHT & PEDESTRIAN SIGNAL
- T WOOD UTILITY POLE W/STREET LIGHT & TRAFFIC SIGNAL
- TPS WOOD UTILITY POLE W/STREET LIGHT, TRAF. SIGNAL & PED. SIGNAL
- METAL STREET LIGHT
- PS METAL STREET LIGHT W/PEDESTRIAN SIGNAL
- T METAL STREET LIGHT W/TRAFFIC SIGNAL
- TPS METAL STREET LIGHT W/TRAFFIC SIGNAL & PEDESTRIAN SIGNAL

NO.	DATE	DESCRIPTIONS	BY	APPR'D
		REVISIONS		

FINAL DESIGN SUBMITTED BY:
AKRF | KSE
The AKRF-KSE JV

PREPARED BY:
B. THAYER ASSOCIATES
B. THAYER ASSOCIATES
NAME OF CONSULTANT

CITY OF NEW YORK
DEPARTMENT OF DESIGN + CONSTRUCTION
DIVISION OF INFRASTRUCTURE
BUREAU OF DESIGN

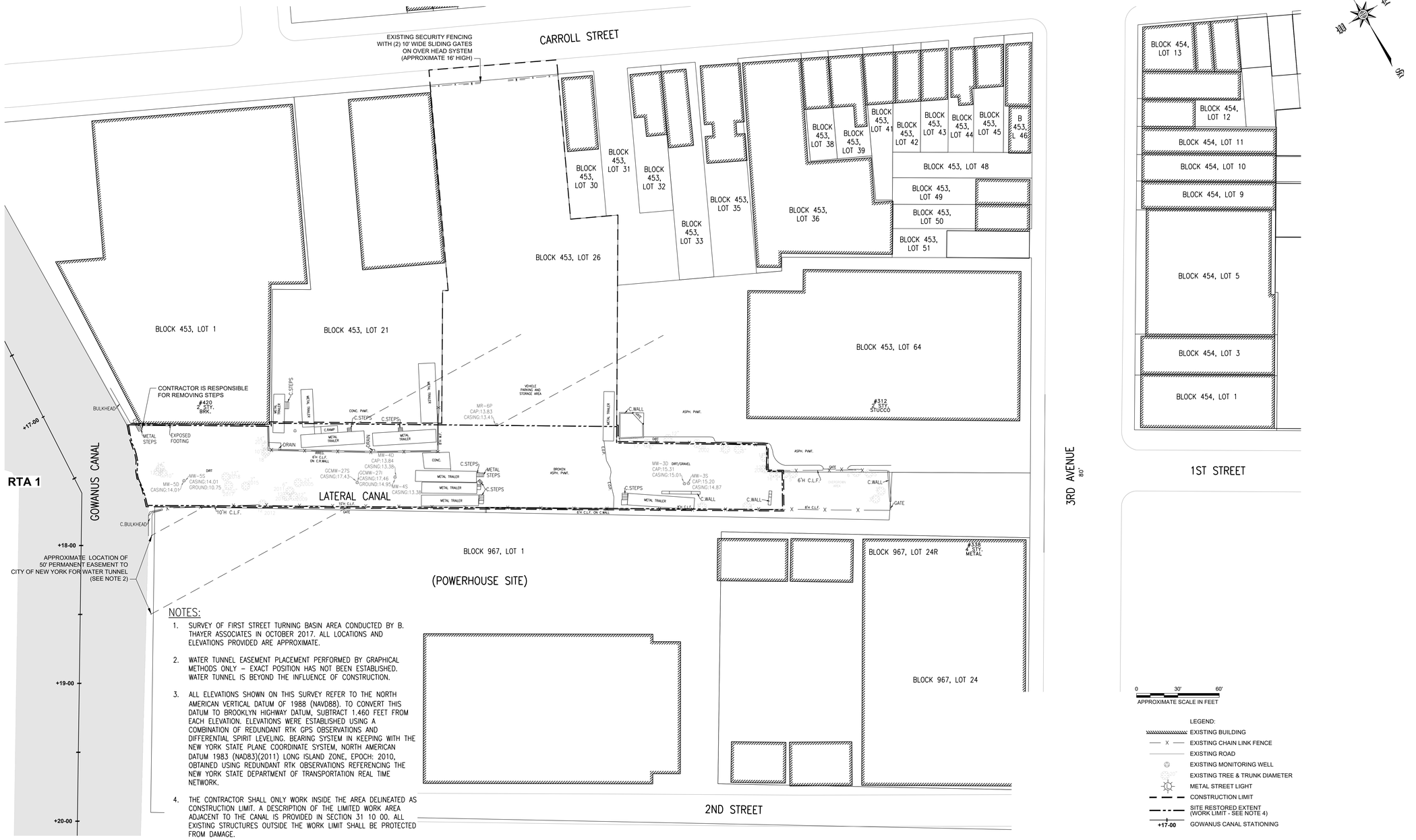
TOPOGRAPHIC & PROPERTY LINE MAP

AKRF INC — DRAWN BY
PL_TOPO.DWG — CADD FILE

FIRST STREET TURNING BASIN
GOWANUS CANAL
BROOKLYN, NEW YORK

CAPITAL PROJECT NO. PW77GOWAN 03/28/19

SHEET 3 OF 32 –



NOTES:

1. SURVEY OF FIRST STREET TURNING BASIN AREA CONDUCTED BY B. THAYER ASSOCIATES IN OCTOBER 2017. ALL LOCATIONS AND ELEVATIONS PROVIDED ARE APPROXIMATE.
2. WATER TUNNEL EASEMENT PLACEMENT PERFORMED BY GRAPHICAL METHODS ONLY – EXACT POSITION HAS NOT BEEN ESTABLISHED. WATER TUNNEL IS BEYOND THE INFLUENCE OF CONSTRUCTION.
3. ALL ELEVATIONS SHOWN ON THIS SURVEY REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). TO CONVERT THIS DATUM TO BROOKLYN HIGHWAY DATUM, SUBTRACT 1.460 FEET FROM EACH ELEVATION. ELEVATIONS WERE ESTABLISHED USING A COMBINATION OF REDUNDANT RTK GPS OBSERVATIONS AND DIFFERENTIAL SPIRIT LEVELING. BEARING SYSTEM IN KEEPING WITH THE NEW YORK STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM 1983 (NAD83)(2011) LONG ISLAND ZONE, EPOCH: 2010, OBTAINED USING REDUNDANT RTK OBSERVATIONS REFERENCING THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION REAL TIME NETWORK.
4. THE CONTRACTOR SHALL ONLY WORK INSIDE THE AREA DELINEATED AS CONSTRUCTION LIMIT. A DESCRIPTION OF THE LIMITED WORK AREA ADJACENT TO THE CANAL IS PROVIDED IN SECTION 31 10 00. ALL EXISTING STRUCTURES OUTSIDE THE WORK LIMIT SHALL BE PROTECTED FROM DAMAGE.
5. INSIDE THE WORK LIMIT, EXISTING STRUCTURES NOT IDENTIFIED AS REQUIRING PROTECTION (OR REMOVED BY OTHERS PRIOR TO MOBILIZATION) SHALL BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH SECTION 31 10 00 AND SECTION 02 51 19. ITEMS ANTICIPATED TO BE REMOVED/DECOMISSIONED BY CONTRACTOR INCLUDE METAL STEPS, VEGETATION, EXISTING MONITORING WELL, ETC. METAL TRAILERS SHOWN ARE ANTICIPATED TO BE REMOVED BY OTHERS.
6. IF STILL PRESENT AT THE TIME OF MOBILIZATION, CONTRACTOR SHALL ADDRESS DRAINS ASSOCIATED WITH LOT 21 PER SECTION 31 10 00.

NO.	DATE	DESCRIPTIONS	BY	APPR'D
0	1/03/2019	90% DESIGN REPORT		

REVISIONS

FINAL DESIGN SUBMITTED BY:
AKRF | KSE
The AKRF-KSE JV

DESIGN PREPARED BY:
ARCADIS
ARCADIS
NAME OF CONSULTANT
SIGNATURE
DATE

CITY OF NEW YORK
DEPARTMENT OF DESIGN + CONSTRUCTION
DIVISION OF INFRASTRUCTURE
BUREAU OF DESIGN

EXISTING CONDITIONS

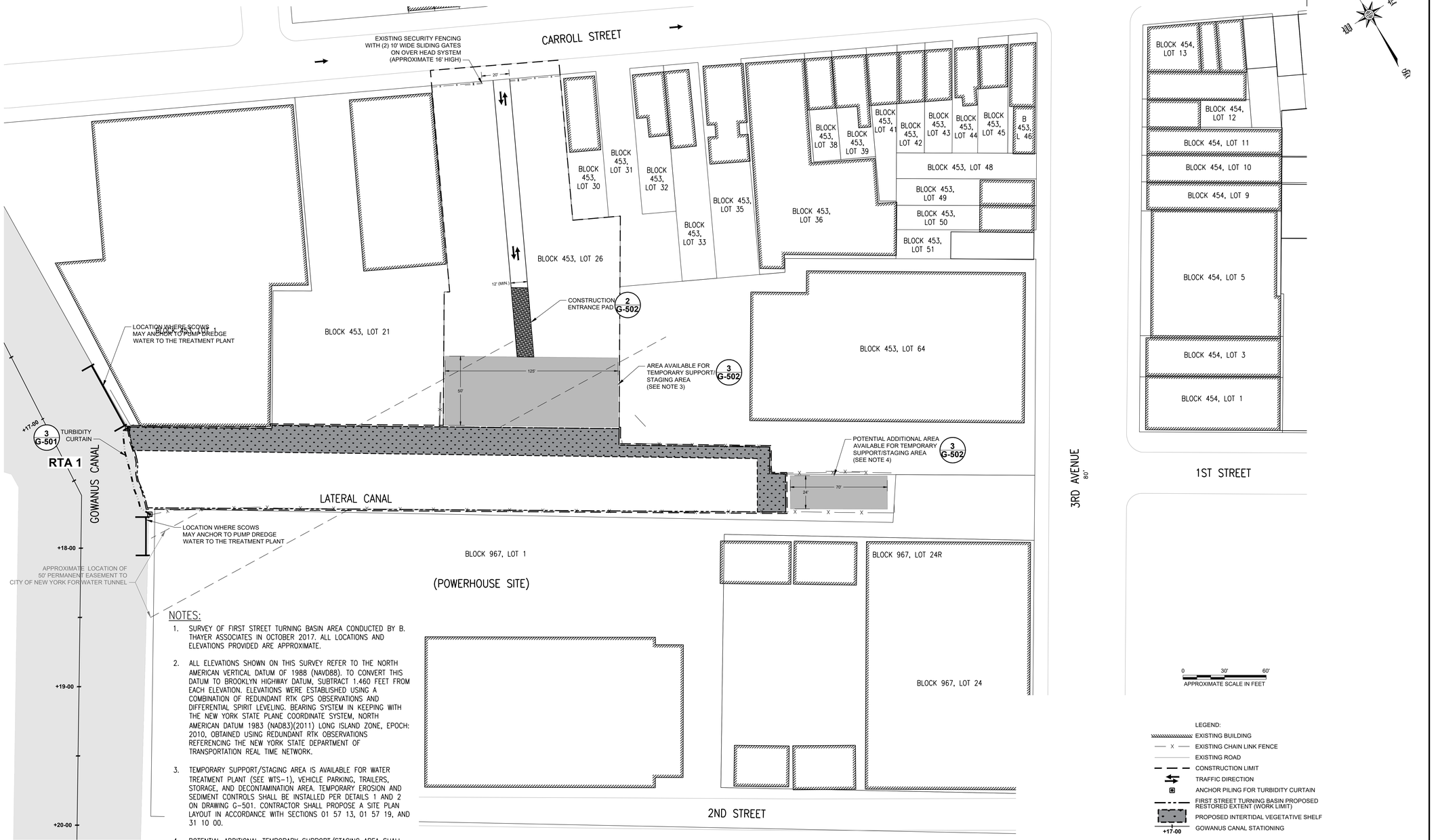
DRAWN BY
GOWANUS_CANAL-SITE PLAN.DWG
CADD FILE

FIRST STREET TURNING BASIN
GOWANUS CANAL
BROOKLYN, NEW YORK

CAPITAL PROJECT NO. PW77GOWAN 03/28/19

SHEET 4 OF 32

G-101



NOTES:

1. SURVEY OF FIRST STREET TURNING BASIN AREA CONDUCTED BY B. THAYER ASSOCIATES IN OCTOBER 2017. ALL LOCATIONS AND ELEVATIONS PROVIDED ARE APPROXIMATE.
2. ALL ELEVATIONS SHOWN ON THIS SURVEY REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). TO CONVERT THIS DATUM TO BROOKLYN HIGHWAY DATUM, SUBTRACT 1.460 FEET FROM EACH ELEVATION. ELEVATIONS WERE ESTABLISHED USING A COMBINATION OF REDUNDANT RTK GPS OBSERVATIONS AND DIFFERENTIAL SPIRIT LEVELING. BEARING SYSTEM IN KEEPING WITH THE NEW YORK STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM 1983 (NAD83)(2011) LONG ISLAND ZONE, EPOCH: 2010, OBTAINED USING REDUNDANT RTK OBSERVATIONS REFERENCING THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION REAL TIME NETWORK.
3. TEMPORARY SUPPORT/STAGING AREA IS AVAILABLE FOR WATER TREATMENT PLANT (SEE WTS-1), VEHICLE PARKING, TRAILERS, STORAGE, AND DECONTAMINATION AREA. TEMPORARY EROSION AND SEDIMENT CONTROLS SHALL BE INSTALLED PER DETAILS 1 AND 2 ON DRAWING G-501. CONTRACTOR SHALL PROPOSE A SITE PLAN LAYOUT IN ACCORDANCE WITH SECTIONS 01 57 13, 01 57 19, AND 31 10 00.
4. POTENTIAL ADDITIONAL TEMPORARY SUPPORT/STAGING AREA SHALL NOT HAVE ACCESS FROM BLOCK 453 – LOT 54 OR BLOCK 967 – LOTS 1 AND 24. ACCESS SHALL ONLY BE BY-THE-WAY OF THE SITE AND WORK LIMIT SHOWN. IF AREA IS USED FOR TEMPORARY SUPPORT/STAGING AREA, TEMPORARY EROSION AND SEDIMENT CONTROLS SHALL BE INSTALLED PER DETAILS 1 AND 2 ON DRAWING G-501.
5. MANAGEMENT OF EXISTING STOCKPILES, DREDGED SEDIMENT, WASTE, AND DEBRIS SHALL BE MANAGED IN ACCORDANCE WITH SECTION 02 51 19. TREATED WATER SHALL BE MANAGED IN ACCORDANCE WITH SECTION 44 08 40.
6. THE CONTRACTOR SHALL ONLY WORK INSIDE THE AREA DELINEATED AS CONSTRUCTION LIMIT. A DESCRIPTION OF THE LIMITED WORK AREA ADJACENT TO THE CANAL IS PROVIDED IN SECTION 31 10 00. ALL EXISTING STRUCTURES OUTSIDE THE WORK LIMIT SHALL BE PROTECTED FROM DAMAGE.
7. CONTRACTOR SHALL NOT MOOR SCOWS/BARGES TO THE EXISTING BULKHEADS.
8. THE CONTRACTOR SHALL ESTABLISH TEMPORARY SURVEY CONTROL POINTS TO SUPPORT CONSTRUCTION WORK ACTIVITIES, PER SPECIFICATION 01 71 23.16.

LEGEND:
- EXISTING BUILDING
- EXISTING CHAIN LINK FENCE
- EXISTING ROAD
- CONSTRUCTION LIMIT
- TRAFFIC DIRECTION
- ANCHOR PILING FOR TURBIDITY CURTAIN
- FIRST STREET TURNING BASIN PROPOSED RESTORED EXTENT (WORK LIMIT)
- PROPOSED INTERTIDAL VEGETATIVE SHELF
- +17-00 GOWANUS CANAL STATIONING

NO.	DATE	DESCRIPTIONS	BY	APPR'D
REVISIONS				
0	1/03/2019	90% DESIGN REPORT		

FINAL DESIGN SUBMITTED BY:
AKRF | KSE
The AKRF-KSE JV

DESIGN PREPARED BY:
ARCADIS
ARCADIS
NAME OF CONSULTANT
SIGNATURE
DATE

CITY OF NEW YORK
DEPARTMENT OF DESIGN + CONSTRUCTION
DIVISION OF INFRASTRUCTURE
BUREAU OF DESIGN

STAGING SITE PLAN

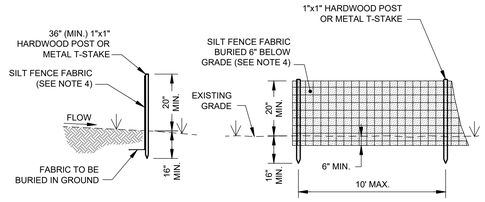
DRAWN BY
GOWANUS CANAL-SITE PLAN.DWG
CADD FILE

FIRST STREET TURNING BASIN
GOWANUS CANAL
BROOKLYN, NEW YORK

CAPITAL PROJECT NO. PW77GOWAN 03/28/19

SHEET 5 OF 32

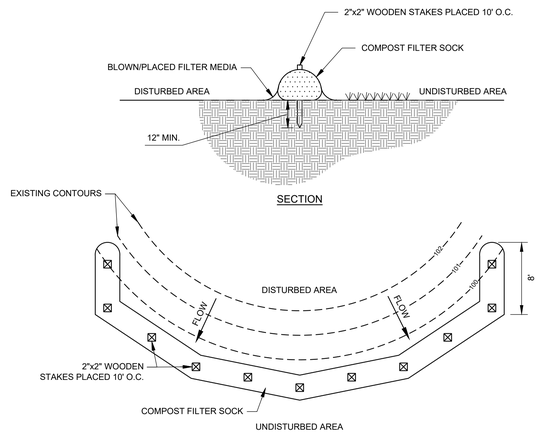
G-102



NOTES:

1. ACCUMULATIONS OF SEDIMENT ADJACENT TO SILT FENCES SHALL BE PERIODICALLY REMOVED THROUGHOUT THE DURATION OF CONSTRUCTION ACTIVITIES.
2. SILT ACCUMULATIONS SHALL BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE-HALF OF THE HEIGHT OF SILT FENCE.
3. THE INTEGRITY OF SILT FENCING SHALL BE MAINTAINED FOR THE PROJECT DURATION.
4. SILT FENCE FABRIC SHALL MEET AASHTO M-288 REQUIREMENTS FOR TEMPORARY SILT FENCE.
5. FOR USE ON IMPERVIOUS SURFACES SUCH AS PAVEMENT PARKING AREAS, ANCHORAGE SHALL BE PROVIDED WITH A CONSTRUCTED WOODEN FRAME (INSTEAD OF STAKES) TO PREVENT SHIFTING OF THE SILT FENCE OR SEPARATION OF THE CONTACT BETWEEN THE SILT FENCE AND THE IMPERVIOUS SURFACE

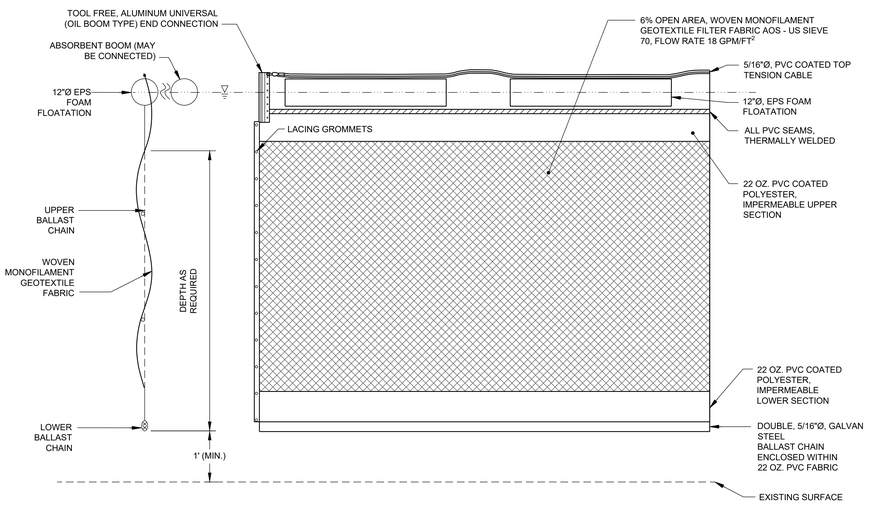
SILT FENCE 1
NOT TO SCALE



NOTES:

1. COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE, BOTH ENDS OF THE SOCK SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO MAIN SOCK ALIGNMENT.
2. TRAFFIC SHALL NOT BE PERMITTED TO CROSS FILTER SOCKS.
3. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES HALF THE ABOVEGROUND HEIGHT OF THE SOCK AND DISPOSED.
4. SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURE'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.
5. BIODEGRADABLE FILTER SOCKS SHALL BE PLACED AFTER 6MONTHS; PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE PLACED ACCORDING TO MANUFACTURE'S RECOMMENDATIONS.
6. CONTRACTOR SHALL ENSURE THAT ACTUAL COMPOST FILTER SOCK DIMENSIONS MEET SPECIFIC DESIGN DIMENSIONS.
7. ON PAVED SURFACES, CONCRETE BLOCKS OR SAND BAGS SHALL BE PLACED AT THE SAME INTERVALS RECOMMENDED FOR STAKES, IMMEDIATELY DOWNSLOPE TO THE COMPOST FILTER SOCK TO HOLD THE SOCK IN PLACE.

COMPOST FILTER SOCK 2
NOT TO SCALE



NOTES:

1. THE TURBIDITY CURTAIN DETAIL PROVIDED HEREON IS CONCEPTUAL. THE CONTRACTOR MAY PROPOSE AN ALTERNATE TURBIDITY CURTAIN OR OTHER APPROPRIATE TURBIDITY CONTROL SYSTEM AT THE REVIEW AND APPROVAL OF THE OWNER AND OWNER'S REPRESENTATIVE. THE CONTRACTOR WILL BE SOLELY RESPONSIBLE FOR MEETING THE PERFORMANCE CRITERIA FOR A TURBIDITY CONTROL SYSTEM AS SPECIFIED IN THE TECHNICAL SPECIFICATIONS.
2. TURBIDITY CURTAIN SHALL BE INSTALLED PRIOR TO CONSTRUCTION ACTIVITIES.
3. ABSORBENT BOOMS SHALL BE INSTALLED ALONG THE INTERIOR PERIMETER OF THE TURBIDITY CURTAIN.
4. ANCHOR CURTAIN TO ANCHOR PILINGS AT THE LACING GROMMETS USING METHODS SUGGESTED BY THE MANUFACTURER. POTENTIAL ATTACHMENT METHODS COULD INCLUDE CABLE CLAMPS, ATTACHED RINGS AND CABLE ETHERS OR FLOATING CABLE RING CONNECTORS.
5. CONTRACTOR SHALL INSTALL NAVIGATION BOYS AND AUTOMATIC FLASHING LIGHTS TO THE ANCHOR PILINGS AND TURBIDITY CURTAIN. BUOYS AND FLASHING LIGHTS SHALL BE IN ACCORDANCE WITH UNITED STATES COAST GUARD REGULATIONS.

TURBIDITY CURTAIN 3
NOT TO SCALE

NO.	DATE	DESCRIPTIONS (REVISIONS)	BY	APPR'D
0	1/03/2019	90% DESIGN REPORT		

FINAL DESIGN SUBMITTED BY:
AKRF | KSE
The AKRF-KSE JV

DESIGN PREPARED BY:
ARCADIS
ARCADIS
NAME OF CONSULTANT
SIGNATURE
DATE

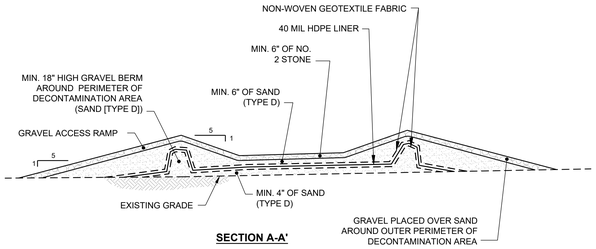
CITY OF NEW YORK
DEPARTMENT OF DESIGN + CONSTRUCTION
DIVISION OF INFRASTRUCTURE
BUREAU OF DESIGN

EROSION, SEDIMENT, AND TURBIDITY CONTROL DETAILS

DRAWN BY
GOWANUS CANAL-EST DETAILS.DWG
CADD FILE

FIRST STREET TURNING BASIN
GOWANUS CANAL
BROOKLYN, NEW YORK

CAPITAL PROJECT NO. PW77GOWAN 03/28/19
SHEET 6 OF 32
G-501

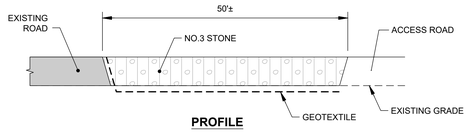


SECTION A-A'

NOTES:

1. DECONTAMINATION AREA SHALL HAVE A GENERAL SLOPE TOWARD A COLLECTION SUMP TO FACILITATE THE COLLECTION OF WASH FLUIDS. FLUIDS SHALL BE PUMPED FROM COLLECTION SUMP INTO 55 GALLON DRUMS OR A TEMPORARY STORAGE TANK (IF NECESSARY).
2. UPON COMPLETION OF CONSTRUCTION ACTIVITIES, THE DECONTAMINATION AREA, INCLUDING HDPE LINER, IS TO BE REMOVED BY THE CONTRACTOR FOR DISPOSAL.
3. PRE-FABRICATED METAL DECONTAMINATION AREAS MAY BE USED IN PLACE OF THIS DETAIL, WITH APPROVAL FROM THE OWNER OR OWNER'S REPRESENTATIVE.

DECONTAMINATION AREA 1
NOT TO SCALE

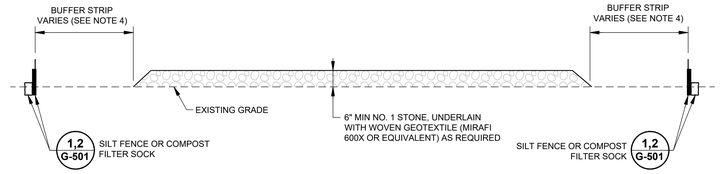


PROFILE

NOTES:

1. CONSTRUCTION ENTRANCE/EXIT PAD WILL BE APPROXIMATELY 50' LONG, 12' WIDE (MIN.), AND 6" THICK.
2. INSTALL CONSTRUCTION ENTRANCE/EXIT PAD AT ALL ACCESS POINTS TO PAVED ROADS.

CONSTRUCTION ENTRANCE PAD 2
NOT TO SCALE



NOTES:

1. THE EXISTING GRADE SURFACE SHALL BE UNIFORM AND FREE OF DELETERIOUS MATERIALS (E.G. WOOD/METAL DEBRIS, ETC.) THAT COULD AFFECT THE STABILITY OF THE PAD.
2. COMPACTION OF RUN-OF-CRUSHER SHALL BE SUFFICIENT DENSITY TO PROVIDE A FIRM AND UNIFORM SURFACE USING APPROPRIATE EQUIPMENT.
3. DIMENSIONS OF TEMPORARY SUPPORT AREA WILL VARY TO ACCOMMODATE CONTRACTOR'S NEEDS AND EXISTING FEATURES AND TOPOGRAPHY. TEMPORARY SUPPORT AREA SHALL BE WITHIN THE LIMITS ILLUSTRATED ON CONSTRUCTION DRAWING S-2.
4. SILT FENCE OR COMPOST FILTER SOCK SHALL BE PLACED ALONG THE OUTSIDE EDGE OF THE CONSTRUCTED TEMPORARY SUPPORT AREA. DIMENSION OF BUFFER STRIP VARIES TO ACCOMMODATE EXISTING FEATURES AND TOPOGRAPHY.

TEMPORARY SUPPORT/STAGING AREA 3
NOT TO SCALE

NO.	DATE	DESCRIPTIONS	BY	APPR'D
		REVISIONS		
0	1/03/2019	90% DESIGN REPORT		

FINAL DESIGN SUBMITTED BY:
AKRF KSE
The AKRF-KSE JV

DESIGN PREPARED BY:
ARCADIS
ARCADIS
NAME OF CONSULTANT
SIGNATURE
DATE

CITY OF NEW YORK
DEPARTMENT OF DESIGN + CONSTRUCTION
DIVISION OF INFRASTRUCTURE
BUREAU OF DESIGN

MISCELLANEOUS DETAILS

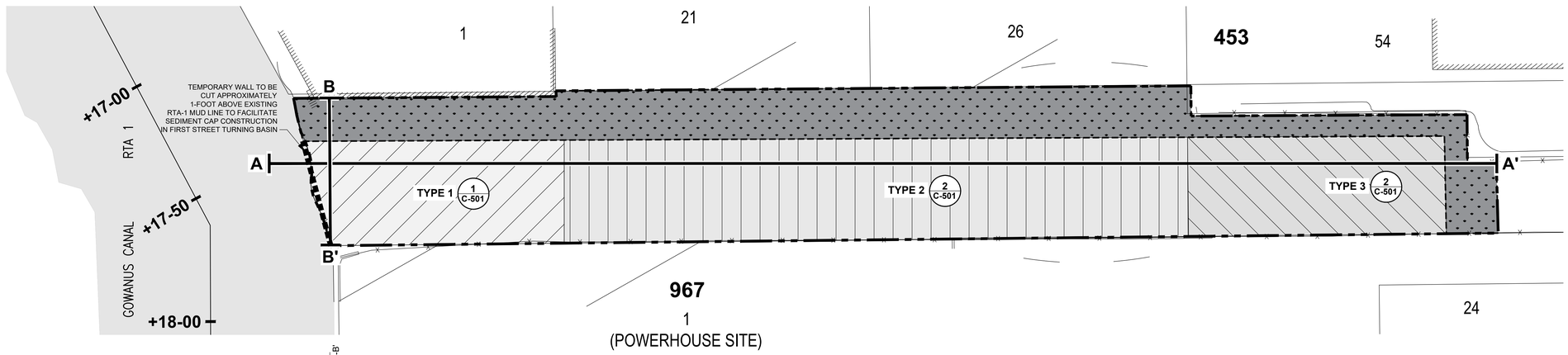
DRAWN BY
GOWANUS CANAL-MISC DETAILS.DWG
CADD FILE

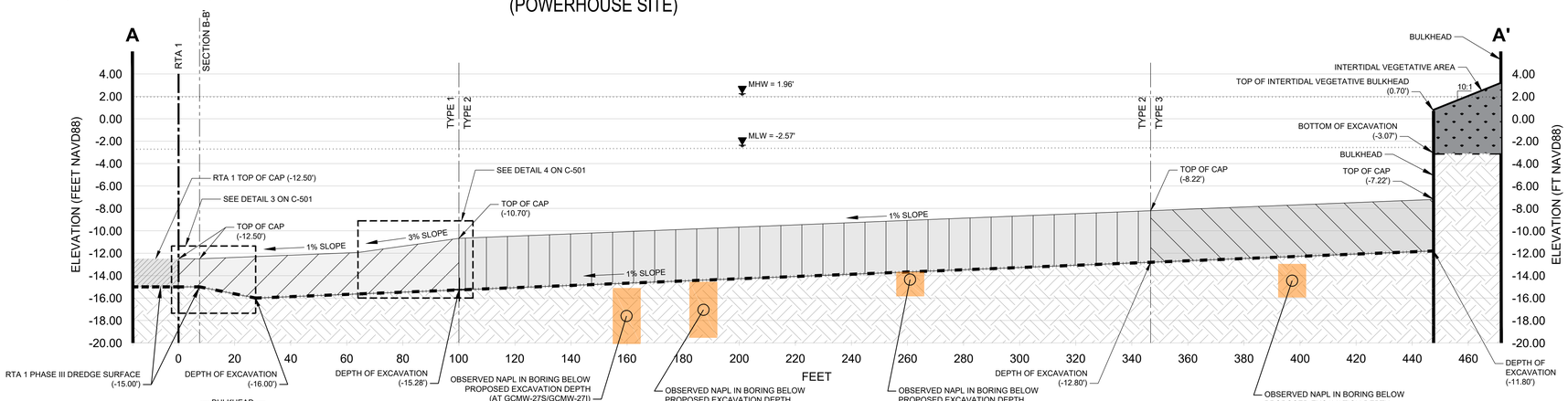
FIRST STREET TURNING BASIN
GOWANUS CANAL
BROOKLYN, NEW YORK

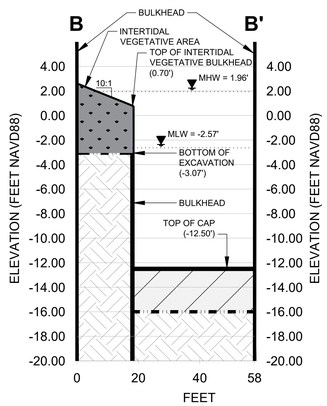
CAPITAL PROJECT NO. PW77GOWAN 03/28/19

SHEET 7 OF 32

C-502







LEGEND:

- FIRST STREET TURNING BASIN PROPOSED RESTORED EXTENT (WORK LIMIT)
- PROPOSED INTERTIDAL VEGETATIVE SHELF
- 54 EXISTING LOT LINE/NUMBER
- 453 EXISTING BLOCK NUMBER
- +17-00 GOWANUS CANAL STATIONING
- A — A' LINE OF TRANSECT
- ASSUMED WATER LEVEL (TIDAL)
- PROPOSED DEPTH OF EXCAVATION
- PROPOSED INTERTIDAL VEGETATIVE CAP AND RESTORATION (SEE DETAIL 5 ON DRAWING C-501)
- PROPOSED SEDIMENT CAP TYPE 1 (SEE DETAIL 1 ON C-501)
- PROPOSED SEDIMENT CAP TYPE 2 (SEE DETAIL 2 ON C-501)
- PROPOSED SEDIMENT CAP TYPE 3 (SEE DETAIL 2 ON C-501)
- PROPOSED RTA 1 CAP (TO BE PREFORMED BY OTHERS)
- UNDISTURBED MATERIAL
- OBSERVED NAPL IN BORING BELOW PROPOSED EXCAVATION DEPTH (SEE NOTE 3)

NOTES:

1. ALL LOCATIONS AND ELEVATIONS PROVIDED ARE APPROXIMATE.
2. REMEDIATION TARGET AREA (RTA) 1 DREDGE DEPTH AND CAP THICKNESS MEASUREMENTS PROVIDED BY USEPA IN THE OCTOBER 15, 2018 MEMORANDUM TITLED 1ST STREET TURNING BASIN SEDIMENT CAP TREATMENT LAYER CONCEPTUAL DESIGN; GOWANUS CANAL SUPERFUND SITE, BROOKLYN, NEW YORK.
3. NAPL IMPACT AS REPORTED IN ENVIRONMENTAL SAMPLING AND ANALYSIS 30% FIELD ACTIVITY SUMMARY REPORT, EXCAVATION AND CAPPING OF THE FILLED FIRST STREET TURNING BASIN, GOWANUS CANAL, BOROUGH OF BROOKLYN, NEW YORK.

NO.	DATE	DESCRIPTIONS	BY	APPR'D
		REVISIONS		
0	1/24/2018	DRAFT PRELIMINARY DESIGN REPORT		
1	7/27/2018	FINALIZED PRELIMINARY DESIGN REPORT		
2	1/03/2019	90% DESIGN REPORT		

FINAL DESIGN SUBMITTED BY:
AKRF | KSE
The AKRF-KSE JV

DESIGN PREPARED BY:
ARCADIS
ARCADIS
NAME OF CONSULTANT
SIGNATURE
DATE

CITY OF NEW YORK
DEPARTMENT OF DESIGN + CONSTRUCTION
DIVISION OF INFRASTRUCTURE
BUREAU OF DESIGN

CAPPING PLAN AND PROFILE

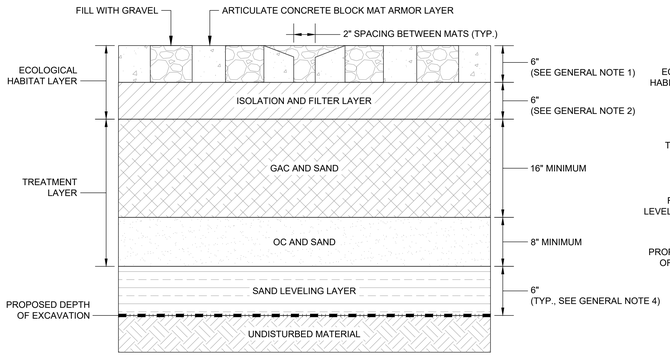
DRAWN BY
GOWANUS CANAL-CAPPING PPSD.DWG
CADD FILE

FIRST STREET TURNING BASIN
GOWANUS CANAL
BROOKLYN, NEW YORK

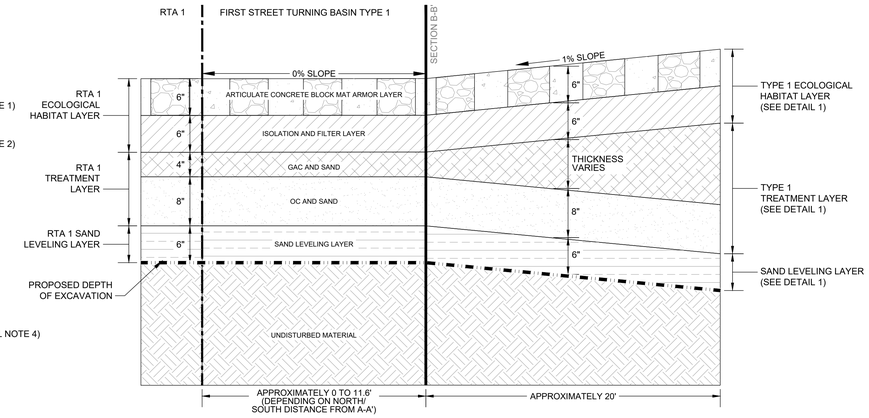
CAPITAL PROJECT NO. PW77GOWAN 03/28/19

SHEET 8 OF 32

C-101



DETAIL 1 - TYPICAL SEDIMENT CAP CROSS SECTION (TYPE 1)
NOT TO SCALE



DETAIL 3 NOTES:

1. FROM RTA 1 TO B-B', SLOPE OF EXCAVATION AND CAP SHALL NOT BE SLOPED. CAP GRADE SHALL INCREASE AT 1% FROM B-B' TOWARD TERMINUS OF FIRST STREET TURNING BASIN. PROPOSED DEPTH OF EXCAVATION SHALL INCREASE AS NEEDED FROM B-B' TOWARD TERMINUS OF FIRST STREET TURNING BASIN TO TRANSITION THE CAP THICKNESS FROM RTA 1 TO TYPE 1 OVER A DISTANCE OF APPROXIMATELY 20'.
2. THICKNESS OF GAC AND SAND LAYER SHALL INCREASE AS NEEDED FROM B-B' TOWARD TERMINUS OF FIRST STREET TURNING BASIN TO TRANSITION THE CAP THICKNESS FROM RTA 1 TO TYPE 1.

DETAIL 3 - CROSS SECTION OF TRANSITION BETWEEN RTA 1 AND TYPE 1
NOT TO SCALE

GENERAL NOTES:

1. THE ARMORING LAYER WILL CONSIST OF 6-INCH THICK ARTICULATED CONCRETE BLOCK (ACB) MATS DESIGNED TO WITHSTAND FORCES FROM CONSTRUCTION, MAINTENANCE, AND MONITORING VESSELS AND HYDRODYNAMIC FORCES. THE VOIDS WILL BE FILLED WITH A COARSE SAND TO SERVE AS AN ECOLOGICAL HABITAT LAYER AND PROMOTE BENTHIC RECOLONIZATION. GRAVEL BACKFILL SHALL BE FLUSH WITH THE TOP OF ACB MATS PLUS OR MINUS 1 INCH WITH A TYPICAL THICKNESS OF 6 INCHES. ACB MAT SHALL BE TERMINATED 1-FOOT (MIN) TO 2-FEET (MAX) FROM THE OUTSIDE EDGE OF ADJACENT BULKHEAD(S). STRUCTURAL CONCRETE FOR UNDER WATER APPLICATIONS SHALL BE APPLIED IN THE VOID BETWEEN THE ACB AND THE ADJACENT BULKHEAD(S). NOTE, THE CAP INSTALLED IN THE INTERTIDAL VEGETATIVE AREA WILL NOT RECEIVE THIS ARMORING LAYER.
2. THE ISOLATION AND FILTER LAYER WILL BE 6 INCHES THICK AND WILL CONSIST OF A SAND AND/OR GRAVEL. THIS LAYER COMBINED WITH THE COARSE SAND PLACED WITHIN THE VOIDS OF THE ACB MATS WILL SERVE AS A 12-INCH THICK ECOLOGICAL HABITAT LAYER.
3. THE CAP WILL HAVE A TREATMENT LAYER CONSISTING OF OLEOPHILIC CLAY (OC) AND SAND OVERLAIN BY GRANULAR ACTIVATED CARBON (GAC) AND SAND. MINIMUM OC DOSAGE SHALL BE 25% BY WEIGHT. MINIMUM GAC DOSAGE SHALL BE:

CAP TYPE	MINIMUM GAC DOSAGE, BY WEIGHT
1	44%
2	44%
3	8%

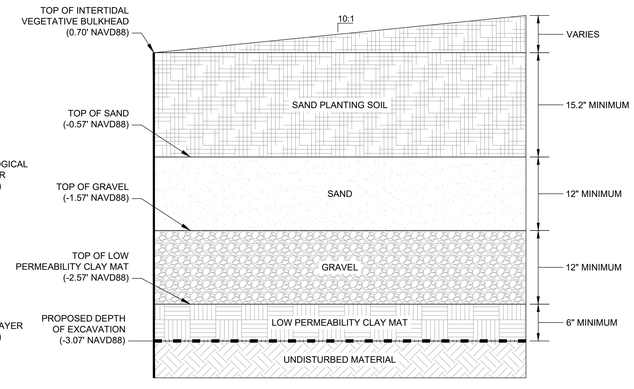
4. THE LEVELING LAYER SHALL HAVE A TYPICAL THICKNESS OF 6 INCHES WITH A MINIMUM AND MAXIMUM LAYER THICKNESS OF 4 INCHES AND 9 INCHES, RESPECTIVELY, EXCEPT WHERE ADDITIONAL THICKNESS IS NECESSARY IN TRANSITION AREAS AND FOR BACKFILLING OF HORIZONTAL BRACING TRENCHES BENEATH THE CAP. THE LEVELING LAYER AND/OR GAC AND SAND LAYER THICKNESSES SHALL BE ADJUSTED AS NECESSARY TO ALIGN THE CAP SURFACE OF THE FIRST STREET TURNING BASIN WITH THE ADJACENT CAP SURFACE IN THE GOWANUS CANAL (i.e., RTA 1, SEE DETAIL 3) AND TO ALIGN THE TYPE 1 AND TYPE 2 CAP SURFACES FOR THE FIRST STREET TURNING BASINS (SEE DETAIL 4).

DETAIL 2 - TYPICAL SEDIMENT CAP CROSS SECTION (TYPE 2 AND 3)
NOT TO SCALE

DETAIL 4 NOTES:

1. PROPOSED DEPTH OF EXCAVATION SHALL BE AT 1% SLOPE THROUGHOUT TRANSITION.
2. THICKNESS OF GAC AND SAND LAYER SHALL INCREASE AS NEEDED TO TRANSITION THE CAP THICKNESS FROM TYPE 1 TO TYPE 2 OVER A DISTANCE OF APPROXIMATELY 20 FEET. THE GRADE FOR TYPE 1 TOP OF CAP SHALL BE NO MORE THAN 3% FOR THE TRANSITION.

DETAIL 4 - CROSS SECTION OF TRANSITION BETWEEN TYPE 1 AND TYPE 2
NOT TO SCALE



DETAIL 5 - TYPICAL INTERTIDAL VEGETATIVE CAP AND RESTORATION CROSS SECTION
NOT TO SCALE

NO.	DATE	DESCRIPTIONS	BY	APPR'D
		REVISIONS		
0	1/24/2018	DRAFT PRELIMINARY DESIGN REPORT		
1	7/27/2018	FINALIZED PRELIMINARY DESIGN REPORT		
2	1/03/2019	90% DESIGN REPORT		

FINAL DESIGN SUBMITTED BY:
AKRF | KSE
The AKRF-KSE JV

DESIGN PREPARED BY:
ARCADIS
ARCADIS
NAME OF CONSULTANT
SIGNATURE
DATE

CITY OF NEW YORK
DEPARTMENT OF DESIGN + CONSTRUCTION
DIVISION OF INFRASTRUCTURE
BUREAU OF DESIGN

TYPICAL CAP CROSS SECTIONS

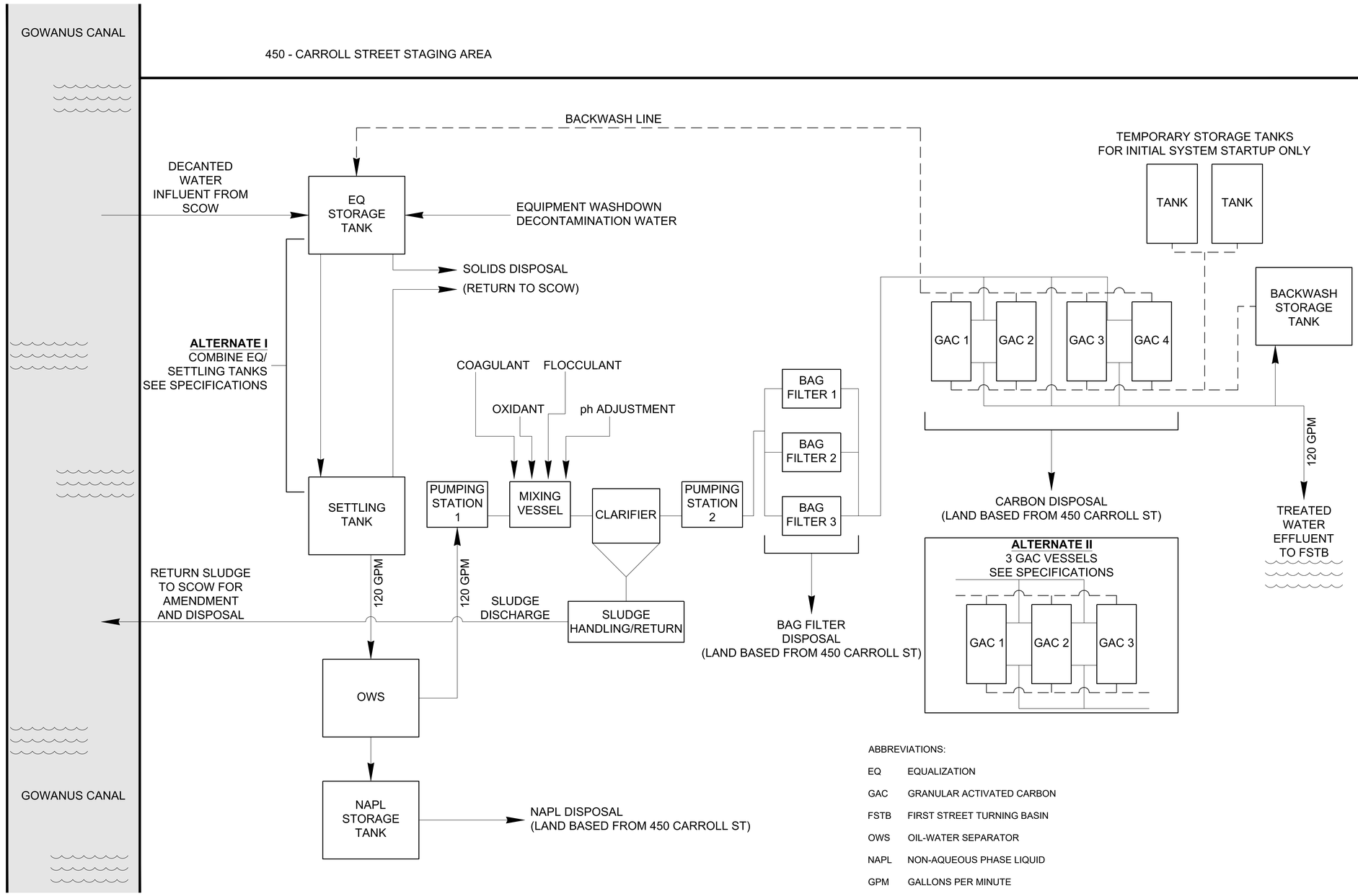
DRAWN BY
GOWANUS CANAL-CAPPING PPSD.DWG
CADD FILE

FIRST STREET TURNING BASIN
GOWANUS CANAL
BROOKLYN, NEW YORK

CAPITAL PROJECT NO. PW77GOWAN 03/28/19

SHEET 9 OF 32

C-501



ABBREVIATIONS:

EQ	EQUALIZATION
GAC	GRANULAR ACTIVATED CARBON
FSTB	FIRST STREET TURNING BASIN
OWS	OIL-WATER SEPARATOR
NAPL	NON-AQUEOUS PHASE LIQUID
GPM	GALLONS PER MINUTE

NO.	DATE	DESCRIPTIONS	BY	APPR'D
0	1/03/2019	90% DESIGN REPORT		

REVISIONS

FINAL DESIGN SUBMITTED BY:
AKRF KSE
The AKRF-KSE JV

DESIGN PREPARED BY:
ARCADIS
ARCADIS
NAME OF CONSULTANT
SIGNATURE
DATE

CITY OF NEW YORK
DEPARTMENT OF DESIGN + CONSTRUCTION
DIVISION OF INFRASTRUCTURE
BUREAU OF DESIGN

WATER TREATMENT SYSTEM
PROCESS FLOW DIAGRAM

DRAWN BY
GOWANUS_CANAL-DWTP2-PFD.DWG
CADD FILE

FIRST STREET TURNING BASIN
GOWANUS CANAL
BROOKLYN, NEW YORK

CAPITAL PROJECT NO. PW77GOWAN 03/28/19

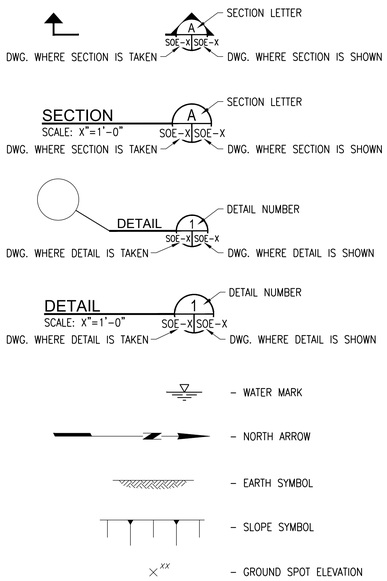
SHEET 10 OF 32

WTS-101

LIST OF SOE/BULKHEAD DRAWINGS

DRAWING NUMBER	DRAWING TITLE
T-001	SUPPORT OF EXCAVATION – GENERAL NOTES, LIST OF DRAWINGS, LEGEND AND ABBREVIATIONS
SOE-100	SUPPORT OF EXCAVATION – SITE PLAN
SOE-200	SUPPORT OF EXCAVATION – SEQUENCE OF CONSTRUCTION
SOE-201	SUPPORT OF EXCAVATION – SEQUENCE OF CONSTRUCTION
SOE-202	SUPPORT OF EXCAVATION – SEQUENCE OF CONSTRUCTION
SOE-300	SUPPORT OF EXCAVATION – PARTIAL PLAN
SOE-301	SUPPORT OF EXCAVATION – PARTIAL PLAN
SOE-400	SUPPORT OF EXCAVATION – SECTIONS
SOE-401	SUPPORT OF EXCAVATION – SECTIONS
SOE-500	SUPPORT OF EXCAVATION – DETAILS
SOE-501	SUPPORT OF EXCAVATION – DETAILS
SOE-600	GEOTECHNICAL INSTRUMENTATION AND MONITORING PLAN
S-100	PERMANENT BULKHEAD BRACING – PLAN
S-101	PERMANENT BULKHEAD BRACING LAYOUT– PARTIAL PLAN AND SECTION
S-102	PERMANENT BULKHEAD BRACING LAYOUT – PARTIAL PLAN AND SECTION
S-200	PERMANENT BULKHEAD – SECTIONS
S-201	PERMANENT BULKHEAD – SECTIONS AND DETAILS
S-400	PERMANENT BULKHEAD CONCRETE CAP – PLAN
S-401	PERMANENT BULKHEAD CAP – PLANS, SECTIONS, AND DETAILS

LEGEND:



ABBREVIATIONS:

BLDG.	–	BUILDING
B.O.	–	BOTTOM OF
℄	–	CENTER LINE
CL	–	CHAIN LINK
CLR.	–	CLEAR
CONC.	–	CONCRETE
DIA.	–	DIAMETER
DWG.	–	DRAWING
DWGS.	–	DRAWINGS
EL.	–	ELEVATION
EXIST.	–	EXISTING
FT.	–	FOOT, FEET
LG.	–	LONG
MHW	–	MEAN HIGH WATER
MLW	–	MEAN LOW WATER
NO.	–	NUMBER
NOS.	–	NUMBERS
O.D.	–	OUTSIDE DIAMETER
STIFF.	–	STIFFENER
S.O.E.	–	SUPPORT OF EXCAVATION
TYP.	–	TYPICAL
TEMP.	–	TEMPORARY
T.O.	–	TOP OF
W.P.	–	WORK POINT
W/	–	WITH
U.O.N.	–	UNLESS OTHERWISE NOTED

GENERAL NOTES:

1. THE LAYOUT OF SOE SYSTEM SHOWN HEREIN IS BASED ON THE SURVEY DRAWING PREPARED BY B.THAYER ASSOCIATES, DATED OCTOBER 10, 2017.
2. ELEVATIONS REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
3. EXISTING GRADE INFORMATION SHOWN ON DRAWINGS HAVE BEEN DEVELOPED BASED ON ELEVATIONS PROVIDED ON TOPOGRAPHICAL AND PROPERTY LINE MAP. EXISTING GRADES AND PROPERTY LINE INFORMATION ALONG THE SOUTH SIDE OF THE SITE IS BASED ON THE PROPOSED POWERHOUSE GRADING PLAN, DATED 5-5-2017.
4. SUBSURFACE SOIL INFORMATION USED FOR THE DESIGN OF THE SUPPORT OF EXCAVATION (SOE) AND BULKHEADS IS BASED ON THE "GEOTECHNICAL INVESTIGATION REPORT" PREPARED BY MUESER RUTLEDGE CONSULTING ENGINEERS, DATED NOVEMBER 15, 2017.
5. CONTRACTOR SHALL TAKE THE NECESSARY PRECAUTIONS SO AS NOT TO DAMAGE EXISTING UTILITIES THAT MUST REMAIN IN OPERATION DURING THE INSTALLATION OF THE SOE. CONTRACTOR SHALL PROTECT AND OR RELOCATE UTILITIES AS REQUIRED. TEST PITS AT RETAINING WALL MAY BE REQUIRED.
6. WORK POINTS FOR THE PERMANENT BULKHEAD ARE USED TO DEFINE THE ALIGNMENT OF THE SOE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SURVEY AND LOCATE THE PERMANENT BULKHEAD AND VERIFY THE VALIDITY OF THE WORK POINTS IN THE FIELD PRIOR TO SOE INSTALLATION. THE CONTRACTOR SHALL SUBMIT A SURVEY OF THE WORK POINTS FOR APPROVAL BY THE OWNER'S REPRESENTATIVE PRIOR TO START OF WORK.
7. THE TOP OF SOE AND BULKHEAD WALL ELEVATIONS VARY. TOP OF BULKHEAD WALL ELEVATIONS SHALL BE AS SHOWN ON THESE DRAWINGS.
8. FINAL EXCAVATION SUBGRADE ELEVATIONS SHOWN ON THESE DRAWINGS ARE BASED ON CAPPING PLAN AND PROFILE, DRAWING C-101, PREPARED BY ARCADIS.
9. THE BRACING LAYOUT AND SPACING SHOWN ON THESE DRAWINGS SHALL NOT BE ALTERED WITHOUT THE REVIEW AND APPROVAL OF MUESER RUTLEDGE CONSULTING ENGINEERS. ANY PROPOSED ALTERATIONS TO THE DESIGN SHALL BE PERFORMED BY A NEW YORK STATE LICENSED PROFESSIONAL ENGINEER, SUBJECT TO THE APPROVAL OF MUESER RUTLEDGE CONSULTING ENGINEERS.

INTERLOCKED PIPE PILE INSTALLATION NOTES:

1. CONTRACTOR SHALL SUBMIT INTERLOCKED PIPE PILE LAYOUT AND FABRICATION SHOP DRAWINGS INCLUDING WORKING POINTS, DRIVING SEQUENCE AND ELEVATIONS FOR REVIEW.
2. THE CONTRACTOR SHALL INSTALL A GUIDE WALL FOR INSTALLATION OF THE SOE WALL SYSTEMS; SUBMIT DRAWINGS AND DETAILED DESCRIPTION OF THE GUIDE WALLS INCLUDING LOCATION AND ALIGNMENT FOR APPROVAL OF THE OWNER'S REPRESENTATIVE
3. CONTRACTOR SHALL SUBMIT THE PROCEDURE TO ADVANCE INTERLOCKED PIPE PILES INCLUDING THE DETAILS OF THE SYSTEM FOR DRILLING THROUGH OVERBURDEN CASING SHOE, DOWN THE HOLE HAMMER AND WELDED CONNECTIONS FOR APPROVAL BY THE OWNER'S REPRESENTATIVE PRIOR TO START OF WORK.
4. BOULDERS, COBBLES, BRICK MASONRY, STEEL, CONCRETE AND OTHER OBSTRUCTIONS ARE EXPECTED TO BE ENCOUNTERED IN THE FILL LAYER. THE CONTRACTOR IS RESPONSIBLE FOR SELECTING A DRILLING SYSTEM CAPABLE OF ADVANCING INTERLOCKED PIPE PILES THROUGH THE OVERBURDEN TO THE MINIMUM TIP ELEVATIONS SHOWN ON THE DRAWINGS. DOWN THE HOLE HAMMER (DTH) SYSTEM SHALL BE RESTRAINED FROM ADVANCING AHEAD OF THE CASING AND THE CUTTINGS SHALL BE FLUSHED OUT INTERNALLY.
5. PRIOR TO INSTALLATION OF INTERLOCKED PIPE PILES, CONTRACTOR SHALL USE THE PROPOSED SYSTEM TO INSTALL 2 TEST PILES IN THE INTERIOR OF THE SITE TO PROVE THE METHOD AND ENSURE THE OPERATION DOES NOT CAUSE LOSS OF MATERIAL OUTSIDE OF THE CASING WHICH MAY BE DETRIMENTAL TO ADJACENT STRUCTURES.
6. CONTRACTOR SHALL PROVIDE ALL NECESSARY SPECIAL CLOSURES, CONSTRUCTION DETAILS AND INTERLOCKS. SUBMIT SHOP DRAWINGS AND CATALOG CUTS FOR ALL ITEMS FOR THE APPROVAL BY THE OWNER'S REPRESENTATIVE.
7. IT IS EXPECTED THAT THE PILES WILL BE INSTALLED WITHOUT FIELD SPLICING. IN THE EVENT THAT SPLICING OF THE PILES IS REQUIRED, THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE. SPLICES SHALL BE FULL PENETRATION BUTT WELDS AND SHALL BE LOCATED IN THE ZONES OF LOW FLEXURAL STRESS AS DETERMINED BY THE OWNER'S REPRESENTATIVE. THE CONTRACTOR SHALL SUBMIT SPLICING DETAILS FOR APPROVAL BY THE OWNER'S REPRESENTATIVE. THE SUBMITTAL SHALL INCLUDE WELDING PROCEDURES AND SHOP DRAWINGS.
8. ALL WELDING OF PIPE PILES AND PILING CONNECTORS SHALL BE IN ACCORDANCE WITH THE PILE AND CONNECTOR MANUFACTURER'S RECOMMENDATIONS.
9. AT THE COMPLETION OF PILE INSTALLATION, SUBMIT COMPLETE AND ACCURATE PILE INSTALLATION RECORDS AND THE AS-BUILT LAYOUT OF THE BULKHEAD WALLS.
10. STEEL SHIMS SHALL BE INSTALLED BETWEEN TEMPORARY WALES AND PIPE PILES TO ENSURE CONTACT AT ALL PIPE PILES.

MATERIAL NOTES:

1. PIPE PILES SHALL CONFORM TO MODIFIED ASTM A252, GRADE 3 WITH A MINIMUM YIELD STRENGTH OF 50 KSI. PIPE PILES SHALL BE EPOXY COATED TO THE MINIMUM ELEVATIONS INDICATED ON DRAWING S-100.
2. STRUCTURAL STEEL SHAPES AND PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A992 OR ASTM A572, WITH A MINIMUM YIELD STRENGTH (Fy) EQUAL TO 50 KSI, UNLESS OTHERWISE NOTED. PERMANENT STEEL BRACING SHALL BE GALVANIZED AND COMPLY WITH THE REQUIREMENTS OF ASTM A123.
3. SHIM PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A36, WITH A MINIMUM YIELD STRENGTH (Fy) EQUAL TO 36 KSI.
4. ALL WELDING SHALL BE PERFORMED IN ACCORDANCE WITH AWS D1.1 USING E70 LOW HYDROGEN ELECTRODES.
5. TREMIE CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 5000 PSI AT 28 DAYS.
6. CAST-IN-PLACE CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS.
7. REINFORCING STEEL SHALL BE NEW BILLET STEEL EPOXY COATED MEETING THE REQUIREMENT OF ASTM A775, GRADE 60 STEEL.

CONSTRUCTION SEQUENCE:

1. THE SOE INSTALLATION SEQUENCE SHALL BE BASED ON THE MUESER RUTLEDGE CONSULTING ENGINEERS DRAWINGS IN CONJUNCTION WITH THE SPECIFICATION REQUIREMENTS OF THE CONTRACT DOCUMENTS.

INSTRUMENTATION AND MONITORING:

1. PRIOR TO CONSTRUCTION, PRE-CONSTRUCTION CONDITION SURVEY OF ADJACENT STRUCTURES SHALL BE PERFORMED IN ACCORDANCE WITH SPECIFICATION 31 09 13 – GEOTECHNICAL INSTRUMENTATION AND MONITORING.
2. INSTALL INSTRUMENTATION AND MOVEMENT MONITORING POINTS, PERFORM BASELINE MONITORING AND MONITOR ALL EXISTING STRUCTURES, PRIOR TO AND DURING CONSTRUCTION, IN ACCORDANCE WITH SPECIFICATION 31 09 13 – GEOTECHNICAL INSTRUMENTATION AND MONITORING.

SOE DESIGN CRITERIA:

1. DESIGN GROUND WATER ELEVATION = EL. 3.0.
2. TEMPORARY CONSTRUCTION SURCHARGE = 600 PSF.
3. DIFFERENTIAL HYDROSTATIC WATER PRESSURE = 2 FEET.

BULKHEAD DESIGN CRITERIA:

1. LIVE LOAD SURCHARGE = 250 PSF.
2. DIFFERENTIAL HYDROSTATIC WATER PRESSURE = 2 FEET.
3. DESIGN EARTHQUAKE (MCE) = 5.75.
4. DESIGN FLOOD ELEVATION = EL. 10 (ZONE AE).

APPLICABLE CODES AND STANDARDS

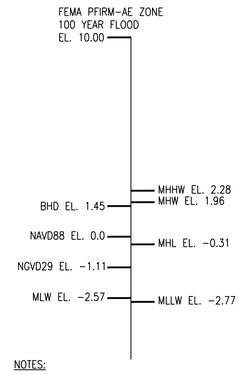
NYCBC – NEW YORK CITY BUILDING CODE (2014)

AISC – MANUAL OF STEEL CONSTRUCTION

ACI – BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318-14)

ASCE – MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES (ASCE 7-10 SEISMIC)

DATUM AND TIDAL INFORMATION:



NOTES:

1. ELEVATIONS SHOWN REFERENCE NAVD88 (NGVD29).
2. ELEVATIONS SHOWN IN FEET.

LIST OF SOE/BULKHEAD SPECIFICATIONS

1. SECTION 03 11 13 – CAST-IN-PLACE
2. SECTION 03 21 00 – REINFORCING STEEL
3. SECTION 03 30 00 – CAST-IN-PLACE CONCRETE
4. SECTION 03 37 26 – UNDERWATER PLACED CONCRETE
5. SECTION 05 05 13.1 – GALVANIZING
6. SECTION 05 12 34 – STRUCTURAL STEEL
7. SECTION 09 96 56 – EPOXY COATINGS
8. SECTION 31 09 13 – GEOTECHNICAL INSTRUMENTATION AND MONITORING
9. SECTION 31 53 01 – TEMPORARY BRACING FOR EXCAVATION
10. SECTION 31 63 34 – DRILLED STEEL PIPE PILES

NO.	DATE	REVISIONS DESCRIPTIONS	BY	APPR'D
0	1/24/2018	DRAFT PRELIMINARY DESIGN REPORT		
1	7/27/2018	FINALIZED PRELIMINARY DESIGN REPORT		
2	1/03/2019	90% DESIGN REPORT		

FINAL DESIGN SUBMITTED BY:
AKRF KSE
The AKRF-KSE JV

DESIGN PREPARED BY:
MRCE built on firm foundations
MUESER RUTLEDGE CONSULTING ENGINEERS
NAME OF CONSULTANT
SIGNATURE
DATE

CITY OF NEW YORK
DEPARTMENT OF DESIGN + CONSTRUCTION
DIVISION OF INFRASTRUCTURE
BUREAU OF DESIGN

SUPPORT OF EXCAVATION GENERAL NOTES, LIST OF DRAWINGS, LEGEND AND ABBREVIATIONS

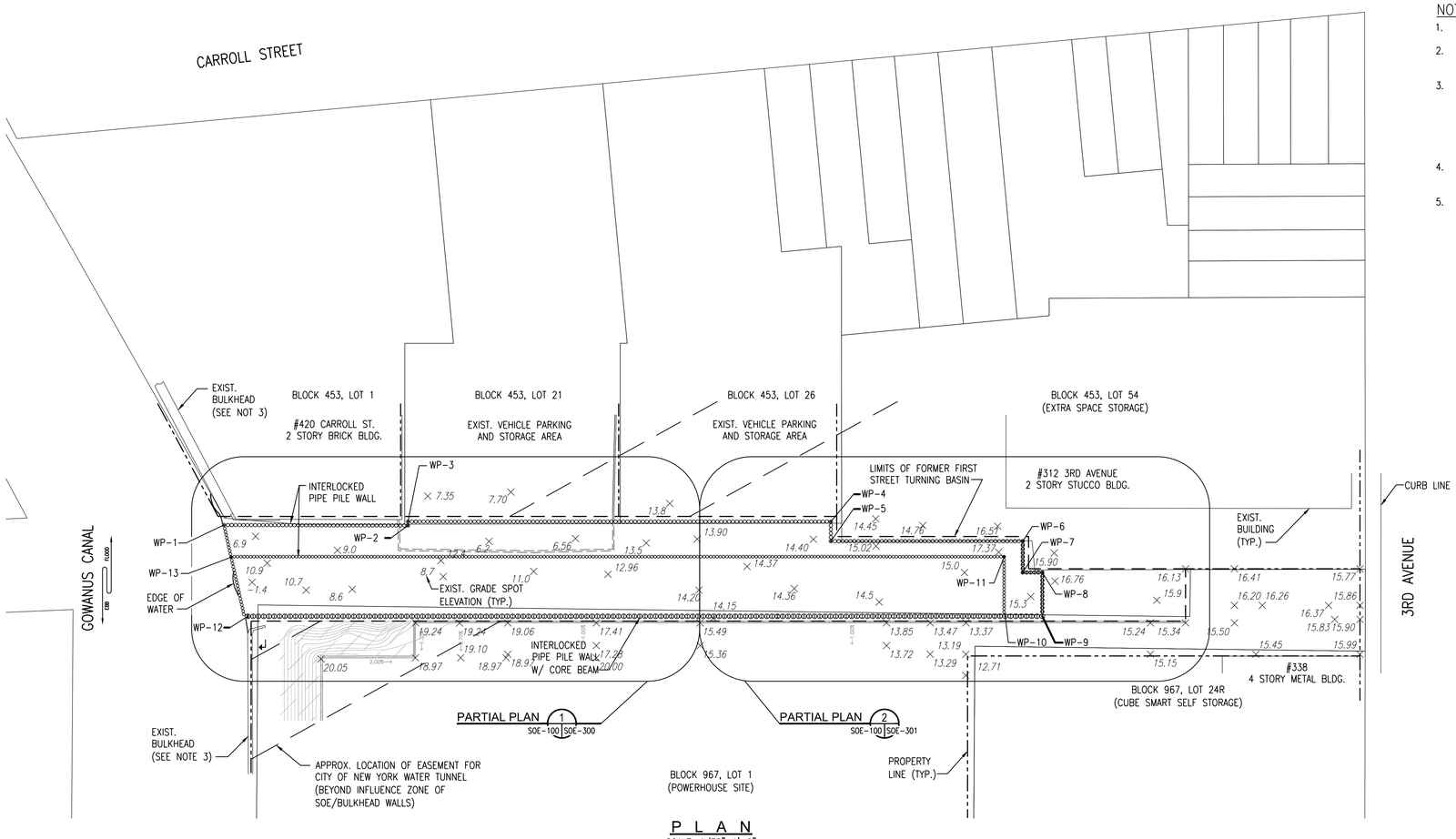
DRAWN BY
T-001.00.DWG
CADD FILE

FIRST STREET TURNING BASIN
GOWANUS CANAL
BROOKLYN, NEW YORK

CAPITAL PROJECT NO. PW77GOWAN 03/28/19

SHEET 11 OF 32

T-001



P L A N

SCALE: 1/32"=1'-0"

NOTES:

1. FOR GENERAL NOTES, SEE DRAWING NO. T-001.
2. FOR GENERAL CONSTRUCTION SEQUENCE, SEE DRAWINGS NOS. SOE-200, SOE-201, AND SOE-202.
3. CONTRACTOR SHALL LAYOUT THE NEW SOE BULKHEAD LOCATION AND SUBMIT PLAN SHOWING THE LOCATION AND DETAILS OF THE EXISTING BULKHEAD RELATIVE TO THE NEW BULKHEAD. ANY INTERFERENCE BETWEEN OLD AND NEW BULKHEAD SHALL BE PRESENTED TO THE ENGINEER FOR RESOLUTION PRIOR TO THE START OF WORK.
4. SEE G SERIES DRAWING FOR EXISTING CONDITIONS AND CONTRACTOR STAGING AREAS.
5. SEE C SERIES DRAWING FOR GRADING PROFILE AND DETAILS.

WORK POINT COORDINATE TABLE

WORK POINT NUMBER	NORTHING	EASTING
W.P.-1	186056.0773	987285.6553
W.P.-2	185999.3246	987374.6122
W.P.-3	186001.2201	987375.8152
W.P.-4	185871.3633	987580.5790
W.P.-5	185861.8856	987574.5638
W.P.-6	185802.9691	987667.4658
W.P.-7	185787.8048	987657.8415
W.P.-8	185781.7929	987667.3213
W.P.-9	185760.6077	987653.8758
W.P.-10	185771.9922	987635.9242
W.P.-11	185801.1728	987653.6776
W.P.-12	186004.5623	987269.1978
W.P.-13	186038.3034	987279.2635

NO.	DATE	DESCRIPTIONS	BY	APPR'D
0	1/24/2018	DRAFT PRELIMINARY DESIGN REPORT		
1	7/27/2018	FINALIZED PRELIMINARY DESIGN REPORT		
2	1/03/2019	90% DESIGN REPORT		

REVISIONS

FINAL DESIGN SUBMITTED BY:
AKRF | KSE
The AKRF-KSE JV

DESIGN PREPARED BY:
MRCE built on firm foundations
MUESER RUTLEDGE CONSULTING ENGINEERS
NAME OF CONSULTANT
SIGNATURE
DATE

CITY OF NEW YORK
DEPARTMENT OF DESIGN + CONSTRUCTION
DIVISION OF INFRASTRUCTURE
BUREAU OF DESIGN

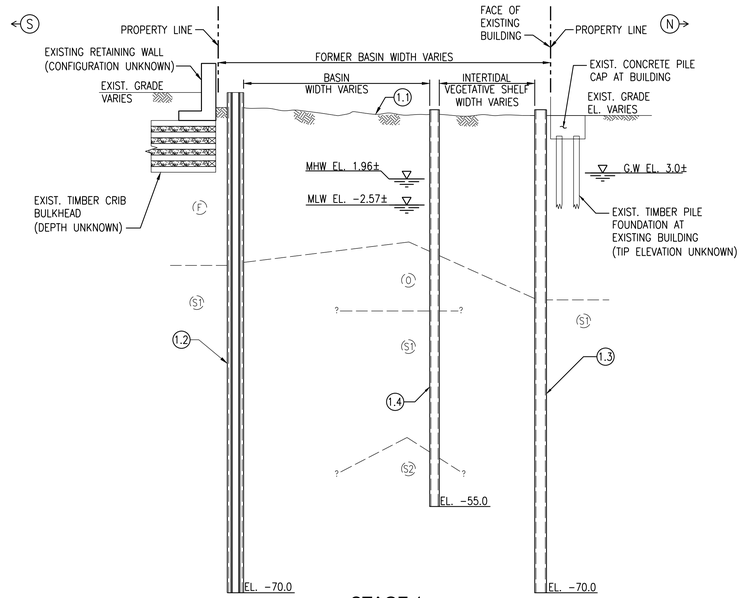
SUPPORT OF EXCAVATION SITE PLAN

DRAWN BY
SOE-100.00.DWG
CADD FILE

FIRST STREET TURNING BASIN
GOWANUS CANAL
BROOKLYN, NEW YORK

CAPITAL PROJECT NO. PW77GOWAN 03/28/19

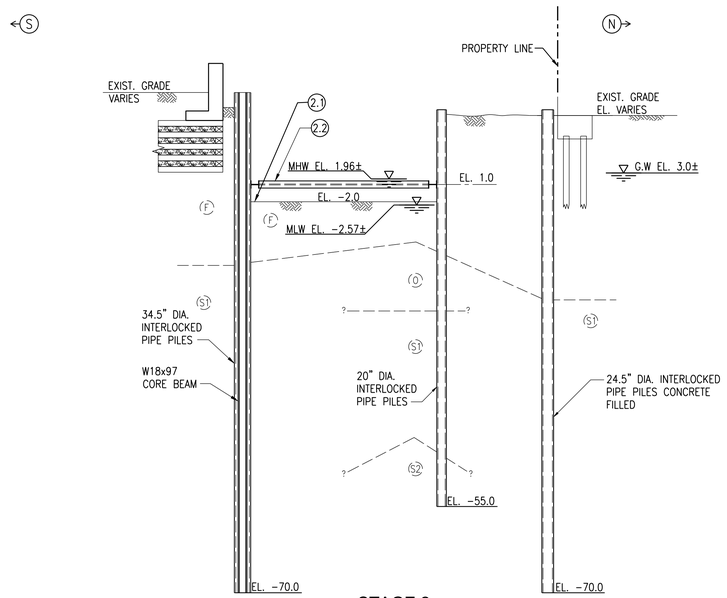
SHEET 12 OF 32 SOE-100



STAGE 1

INSTALL INTERLOCKED PIPE PILES

SCALE: 3/32"=1'-0"



STAGE 2

EXCAVATE AND INSTALL BRACING

SCALE: 3/32"=1'-0"

NOTES:

1. SOIL STRATA IS SHOWN FOR ILLUSTRATION PURPOSES ONLY. ACTUAL SOIL PROFILE VARIES. SEE GEOTECHNICAL REPORT FOR SUBSURFACE INFORMATION.
2. SECTIONS SHOWN ARE FOR ILLUSTRATIVE PURPOSES ONLY. EXISTING GRADES AND ADJACENT PROPERTIES VARY. SEE SURVEY PLAN FOR EXISTING CONDITIONS.

GENERAL STRATA DESCRIPTIONS:

- (F) FILL
- (O) CLAY
- (S1) LOWER SAND
- (S2) UPPER SAND

STAGE 1:

1.1 REGRADE SITE AS NECESSARY FOR INSTALLATION OF PIPE PILES.

1.2 INSTALL 34.5" DIAMETER PIPE PILES, CORE BEAMS, AND CONCRETE FILL.

1.3 INSTALL 24.5" DIAMETER PIPE PILES AND CONCRETE FILL.

1.4 INSTALL 20" DIAMETER PIPE PILES AND CONCRETE FILL.

STAGE 2:

2.1 EXCAVATE IN THE WET TO EL. −2.0. MONITOR PIPE STRUCTURES FOR MOVEMENT.

2.2 INSTALL TEMPORARY BRACING AT EL. 1.0.

NOTES:

CONTRACTOR MAY PERFORM STEPS 1.2 THROUGH 1.4 IN ANY ORDER AND CONCURRENTLY TO MEET APPROVED PROJECT SCHEDULE.

NO.	DATE	DESCRIPTIONS	BY	APPR'D
REVISIONS				
0	1/24/2018	DRAFT PRELIMINARY DESIGN REPORT		
1	7/27/2018	FINALIZED PRELIMINARY DESIGN REPORT		
2	1/03/2019	90% DESIGN REPORT		

FINAL DESIGN SUBMITTED BY:
AKRF KSE
The AKRF-KSE JV

DESIGN PREPARED BY:
MRCE
built on firm foundations
MUESER RUTLEDGE CONSULTING ENGINEERS
NAME OF CONSULTANT
SIGNATURE
DATE

CITY OF NEW YORK
DEPARTMENT OF DESIGN + CONSTRUCTION
DIVISION OF INFRASTRUCTURE
BUREAU OF DESIGN

SUPPORT OF EXCAVATION
SEQUENCE OF CONSTRUCTION

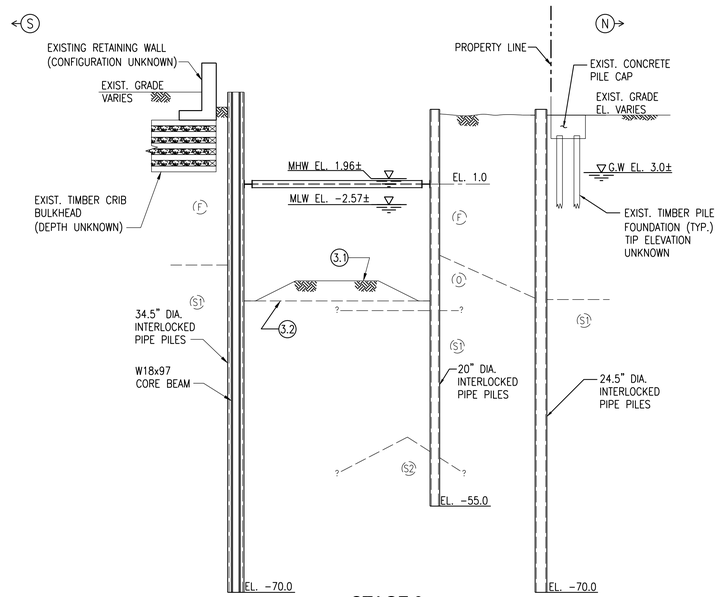
DRAWN BY
SOE-200.00.DWG
CADD FILE

FIRST STREET TURNING BASIN
GOWANUS CANAL
BROOKLYN, NEW YORK

CAPITAL PROJECT NO. PW77GOWAN 03/28/19

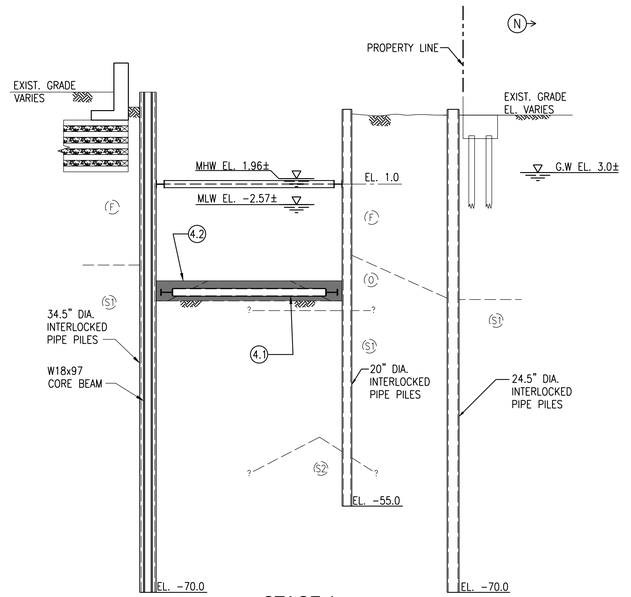
SHEET 13 OF 32

SOE-200



STAGE 3
EXCAVATE TO FINAL SUBGRADE

SCALE: 3/32"=1'-0"



STAGE 4
INSTALL PERMANENT BRACING

SCALE: 3/32"=1'-0"

STAGE 3:

3.1 EXCAVATE IN THE WET TO SEDIMENT CAP SUBGRADE ELEVATION. MONITOR STRUCTURES. SEE NOTE 4.

3.2 EXCAVATE TRENCHES FOR PERMANENT BRACING INSTALLATION. MONITOR STRUCTURES FOR MOVEMENT. SEE NOTE 2.

STAGE 4:

4.1 INSTALL PERMANENT BRACING WITHIN TRENCHES.

4.2 BACKFILL TRENCHES WITH TREMIE CONCRETE. SEE NOTE 5.

NOTES:

1. SOIL STRATA IS SHOWN FOR ILLUSTRATION PURPOSES ONLY. ACTUAL SOIL PROFILE VARIES. SEE GEOTECHNICAL REPORT FOR SUBSURFACE INFORMATION.
2. SEE DWG. NO. S-201 FOR TYPICAL TRENCH DETAILS. SEE DWGS S-101 AND S-102 FOR TRENCH SUBGRADE ELEVATIONS.
3. SECTIONS SHOWN ARE FOR ILLUSTRATIVE PURPOSES ONLY. EXISTING GRADES AND ADJACENT PROPERTIES VARY. SEE SURVEY PLAN FOR ACTUAL CONDITIONS.
4. SEE C-SERIES DRAWINGS FOR CAP SUBGRADE ELEVATIONS.
5. SEE DWGS S-101 AND S-102 FOR TOP OF TREMIE CONCRETE ELEVATIONS.

GENERAL STRATA DESCRIPTIONS:

(F) FILL

(O) CLAY

(S1) LOWER SAND

(S2) UPPER SAND

NO.	DATE	DESCRIPTIONS	BY	APPR'D
0	1/24/2018	DRAFT PRELIMINARY DESIGN REPORT		
1	7/27/2018	FINALIZED PRELIMINARY DESIGN REPORT		
2	1/03/2019	90% DESIGN REPORT		

REVISIONS

FINAL DESIGN SUBMITTED BY:
AKRF | KSE
The AKRF-KSE JV

DESIGN PREPARED BY:
MRCE built on firm foundations
MUESER RUTLEDGE CONSULTING ENGINEERS
NAME OF CONSULTANT
SIGNATURE
DATE

CITY OF NEW YORK
DEPARTMENT OF DESIGN + CONSTRUCTION
DIVISION OF INFRASTRUCTURE
BUREAU OF DESIGN

SUPPORT OF EXCAVATION
SEQUENCE OF CONSTRUCTION

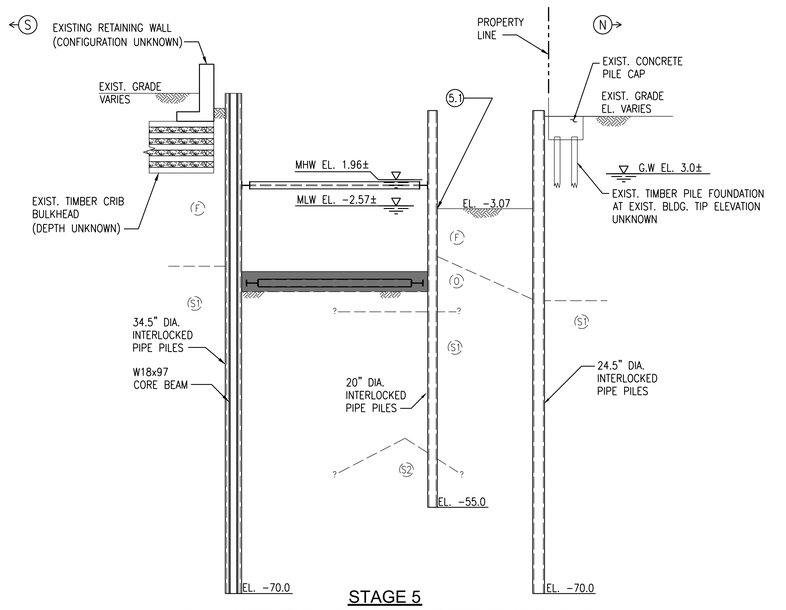
DRAWN BY
SOE-201.00.DWG
CADD FILE

FIRST STREET TURNING BASIN
GOWANUS CANAL
BROOKLYN, NEW YORK

CAPITAL PROJECT NO. PW77GOWAN 03/28/19

SHEET 14 OF 32

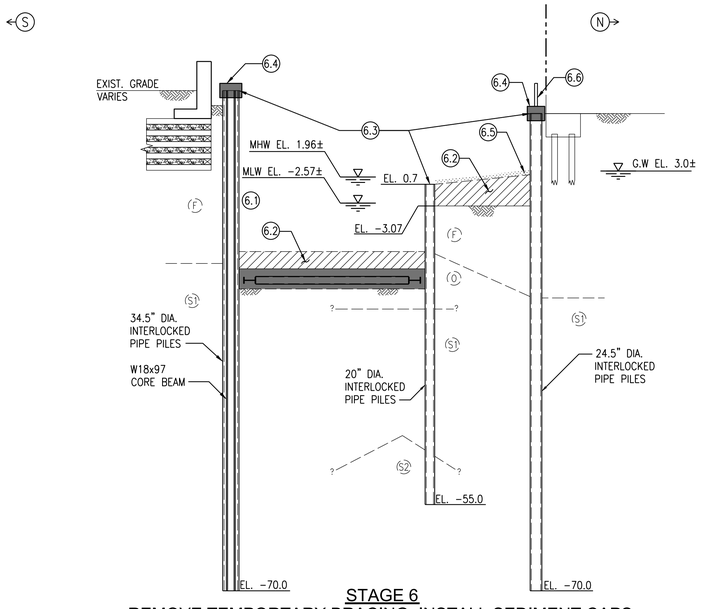
SOE-201



STAGE 5

EXCAVATE FOR INTERTIDAL VEGETATIVE SHELF

SCALE: 3/32"=1'-0"



STAGE 6

REMOVE TEMPORARY BRACING, INSTALL SEDIMENT CAPS, CONCRETE BUKHEAD CAP, PLANTINGS, AND FENCE

SCALE: 3/32"=1'-0"

NOTES:

1. SOIL STRATA IS SHOWN FOR ILLUSTRATION PURPOSES ONLY. ACTUAL SOIL PROFILE VARIES. SEE GEOTECHNICAL REPORT FOR SUBSURFACE INFORMATION.
2. SECTIONS SHOWN ARE FOR ILLUSTRATIVE PURPOSES ONLY. EXISTING GRADES AND ADJACENT PROPERTIES VARY. SEE SURVEY PLAN FOR ACTUAL CONDITIONS.
3. SEE C-SERIES DRAWINGS FOR SEDIMENT CAP DETAILS.
4. PILE CUT-OFF ELEVATIONS SHALL BE 1'-0" BELOW TOP OF CONCRETE CAP. SEE DRAWINGS S-101 AND S-102 FOR TOP OF BULKHEAD CONCRETE CAP ELEVATIONS.
5. SEE L-SERIES DRAWINGS FOR FENCE DETAILS.

STAGE 5:

5.1 EXCAVATE FOR INTERTIDAL VEGETATIVE SHELF. MONITOR STRUCTURES FOR MOVEMENT. SEE NOTE 3.

STAGE 6:

6.1 REMOVE TEMPORARY BRACING. MONITOR PIPE PILES FOR MOVEMENT.

6.2 INSTALL SEDIMENT CAP. SEE NOTE 3.

6.3 CUT-OFF PIPE PILES TO FINAL CUT-OFF ELEVATION. SEE NOTE 4.

6.4 CONSTRUCT CONCRETE CAP. SEE NOTE 4.

6.5 PLACE PLANTING SOIL AND PLANTINGS FOR INTERTIDAL VEGETATIVE SHELF.

6.6 INSTALL FENCE. SEE NOTE 5.

GENERAL STRATA DESCRIPTIONS:

(F) FILL

(O) CLAY

(S1) LOWER SAND

(S2) UPPER SAND

NO.	DATE	DESCRIPTIONS	BY	APPR'D
		REVISIONS		
0	1/24/2018	DRAFT PRELIMINARY DESIGN REPORT		
1	7/27/2018	FINALIZED PRELIMINARY DESIGN REPORT		
2	1/03/2019	90% DESIGN REPORT		

FINAL DESIGN SUBMITTED BY:
AKRF | KSE
The AKRF-KSE JV

DESIGN PREPARED BY:
MRCE
built on firm foundations
MUESER RUTLEDGE CONSULTING ENGINEERS
NAME OF CONSULTANT
SIGNATURE
DATE

CITY OF NEW YORK
DEPARTMENT OF DESIGN + CONSTRUCTION
DIVISION OF INFRASTRUCTURE
BUREAU OF DESIGN

SUPPORT OF EXCAVATION
SEQUENCE OF CONSTRUCTION

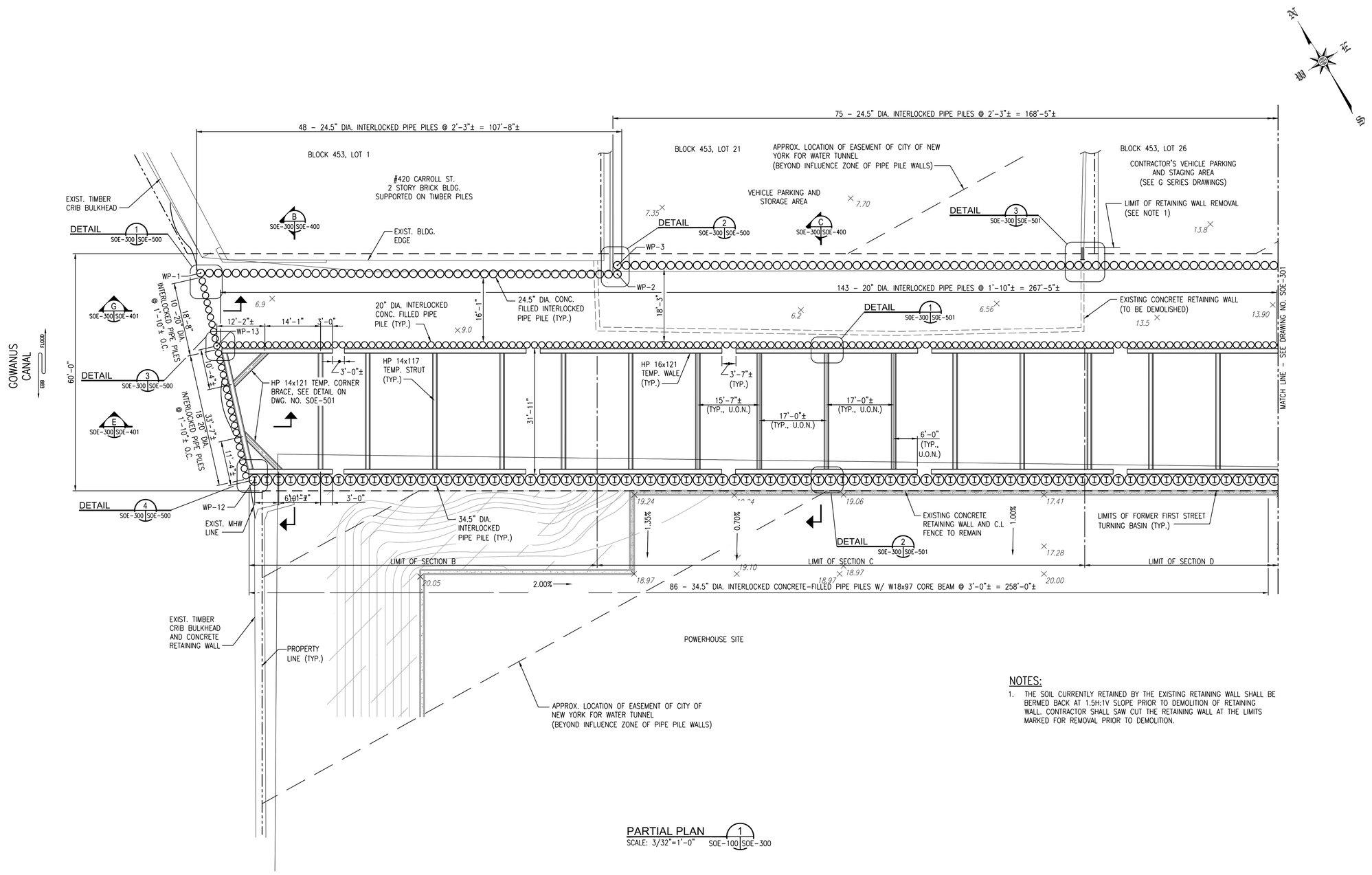
DRAWN BY
SOE-202.00.DWG
CADD FILE

FIRST STREET TURNING BASIN
GOWANUS CANAL
BROOKLYN, NEW YORK

CAPITAL PROJECT NO. PW77GOWAN 03/28/19

SHEET 15 OF 32

SOE-202



PARTIAL PLAN 1
SCALE: 3/32"=1'-0" SOE-100 | SOE-300

NOTES:

1. THE SOIL CURRENTLY RETAINED BY THE EXISTING RETAINING WALL SHALL BE BERMED BACK AT 1.5H:1V SLOPE PRIOR TO DEMOLITION OF RETAINING WALL. CONTRACTOR SHALL SAW CUT THE RETAINING WALL AT THE LIMITS MARKED FOR REMOVAL PRIOR TO DEMOLITION.

NO.	DATE	DESCRIPTIONS	BY	APPR'D
		REVISIONS		
0	1/24/2018	DRAFT PRELIMINARY DESIGN REPORT		
1	7/27/2018	FINALIZED PRELIMINARY DESIGN REPORT		
2	1/03/2019	90% DESIGN REPORT		

FINAL DESIGN SUBMITTED BY:
AKRF | KSE
The AKRF-KSE JV

DESIGN PREPARED BY:
MRCE built on firm foundations
MUESER RUTLEDGE CONSULTING ENGINEERS
NAME OF CONSULTANT
SIGNATURE
DATE

CITY OF NEW YORK
DEPARTMENT OF DESIGN + CONSTRUCTION
DIVISION OF INFRASTRUCTURE
BUREAU OF DESIGN

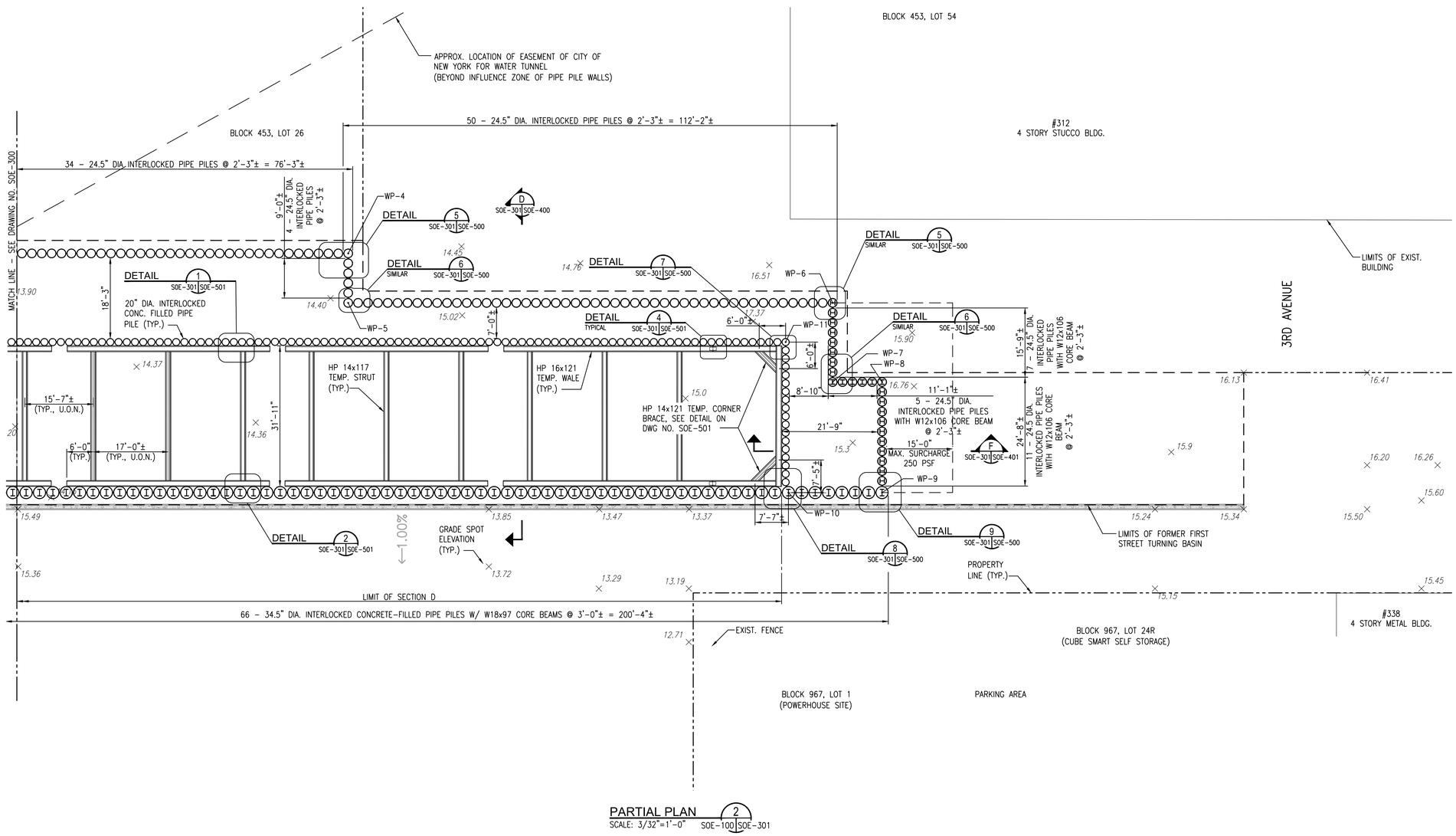
SUPPORT OF EXCAVATION
PARTIAL PLAN

DRAWN BY
SOE-300.00.DWG
CADD FILE

FIRST STREET TURNING BASIN
GOWANUS CANAL
BROOKLYN, NEW YORK

CAPITAL PROJECT NO. PW77GOWAN 03/28/19

SHEET 16 OF 32 SOE-300



PARTIAL PLAN 2

SCALE: 3/32"=1'-0" SOE-100 SOE-301

NO.	DATE	REVISIONS: DESCRIPTIONS	BY	APPR'D
0	1/24/2018	DRAFT PRELIMINARY DESIGN REPORT		
1	7/27/2018	FINALIZED PRELIMINARY DESIGN REPORT		
2	1/03/2019	90% DESIGN REPORT		

FINAL DESIGN SUBMITTED BY:
AKRF KSE
The AKRF-KSE JV

DESIGN PREPARED BY:
MRCE built on firm foundations
MUESER RUTLEDGE CONSULTING ENGINEERS
NAME OF CONSULTANT
SIGNATURE
DATE

CITY OF NEW YORK
DEPARTMENT OF DESIGN + CONSTRUCTION
DIVISION OF INFRASTRUCTURE
BUREAU OF DESIGN

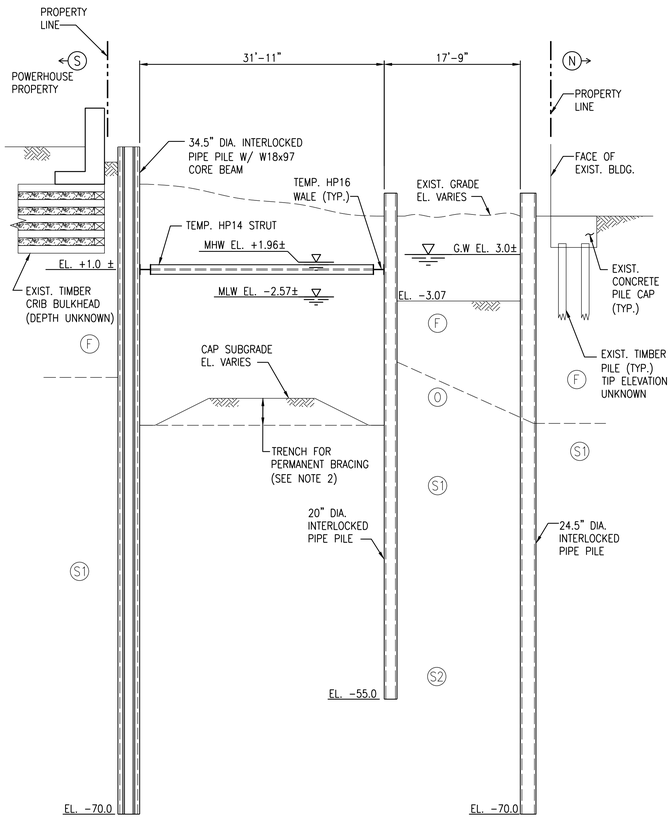
SUPPORT OF EXCAVATION
PARTIAL PLAN

DRAWN BY
SOE-301.00.DWG
CADD FILE

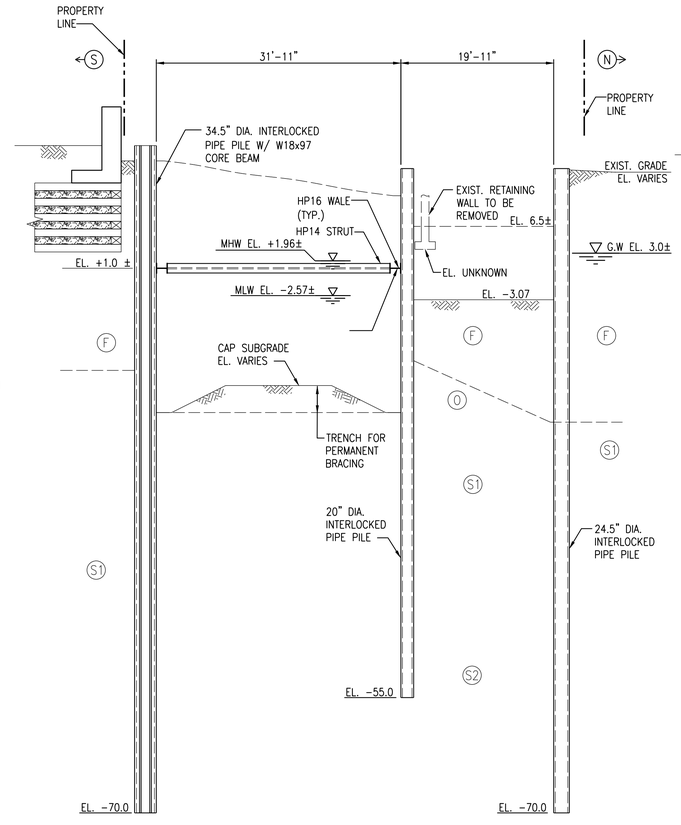
FIRST STREET TURNING BASIN
GOWANUS CANAL
BROOKLYN, NEW YORK

CAPITAL PROJECT NO. PW77GOWAN 03/28/19

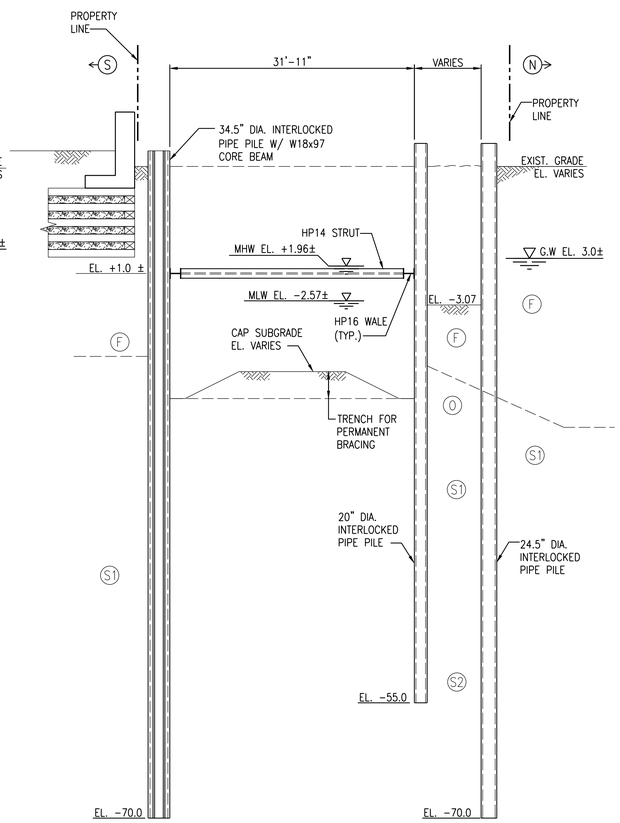
SHEET 17 OF 32 SOE-301



SECTION B
SCALE: 1/8"=1'-0"
SOE-300 | SOE-400



SECTION C
SCALE: 1/8"=1'-0"
SOE-300 | SOE-400



SECTION D
SCALE: 1/8"=1'-0"
SOE-301 | SOE-400

NOTES:

1. SOIL STRATA IS SHOWN FOR ILLUSTRATION PURPOSES ONLY. ACTUAL SOIL PROFILE VARIES. SEE GEOTECHNICAL REPORT FOR SUBSURFACE INFORMATION.
2. SEE DWG S-201 FOR TYPICAL TRENCHING DETAIL.

NO.	DATE	DESCRIPTIONS (REVISIONS)	BY	APPR'D
0	1/24/2018	DRAFT PRELIMINARY DESIGN REPORT		
1	7/27/2018	FINALIZED PRELIMINARY DESIGN REPORT		
2	1/03/2019	90% DESIGN REPORT		

FINAL DESIGN SUBMITTED BY:
AKRF | KSE
The AKRF-KSE JV

DESIGN PREPARED BY:
MRCE built on firm foundations
MUESER RUTLEDGE CONSULTING ENGINEERS
NAME OF CONSULTANT
SIGNATURE
DATE

CITY OF NEW YORK
DEPARTMENT OF DESIGN + CONSTRUCTION
DIVISION OF INFRASTRUCTURE
BUREAU OF DESIGN

SUPPORT OF EXCAVATION SECTIONS

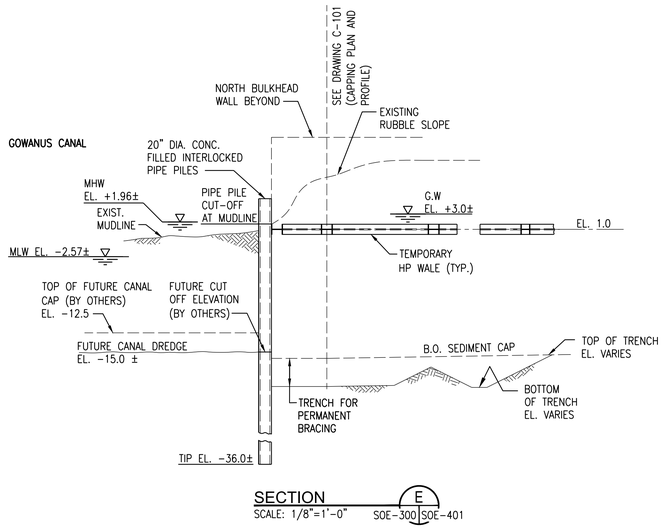
DRAWN BY
SOE-400.00.DWG
CADD FILE

FIRST STREET TURNING BASIN
GOWANUS CANAL
BROOKLYN, NEW YORK

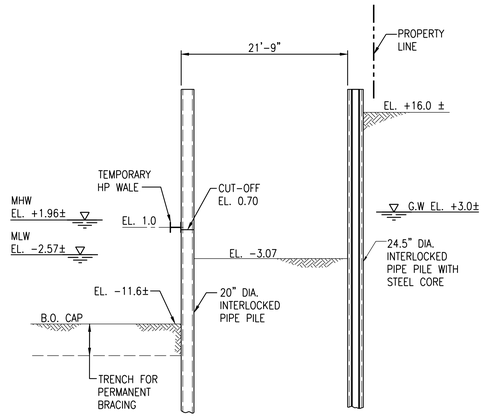
CAPITAL PROJECT NO. PW77GOWAN 03/28/19

SHEET 18 OF 32

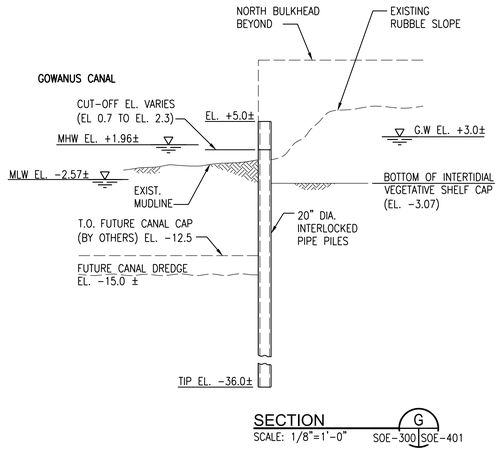
SOE-400



SECTION E
SCALE: 1/8"=1'-0"
SOE-300 | SOE-401



SECTION F
SCALE: 1/8"=1'-0"
SOE-301 | SOE-401



SECTION G
SCALE: 1/8"=1'-0"
SOE-300 | SOE-401

NO.	DATE	REVISIONS DESCRIPTIONS	BY	APPR'D
0	1/24/2018	DRAFT PRELIMINARY DESIGN REPORT		
1	7/27/2018	FINALIZED PRELIMINARY DESIGN REPORT		
2	1/03/2019	90% DESIGN REPORT		

FINAL DESIGN SUBMITTED BY:
AKRF | KSE
The AKRF-KSE JV

DESIGN PREPARED BY:
MRCE
MUESER RUTLEDGE CONSULTING ENGINEERS
NAME OF CONSULTANT
SIGNATURE
DATE

CITY OF NEW YORK
DEPARTMENT OF DESIGN + CONSTRUCTION
DIVISION OF INFRASTRUCTURE
BUREAU OF DESIGN

SUPPORT OF EXCAVATION SECTIONS

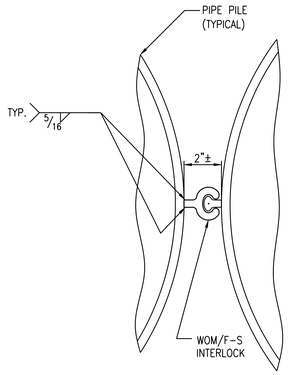
DRAWN BY
SOE-401.00.DWG
CADD FILE

FIRST STREET TURNING BASIN
GOWANUS CANAL
BROOKLYN, NEW YORK

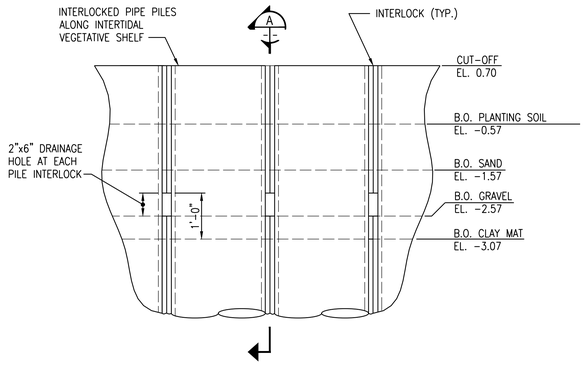
CAPITAL PROJECT NO. PW77GOWAN 03/28/19

SHEET 19 OF 32

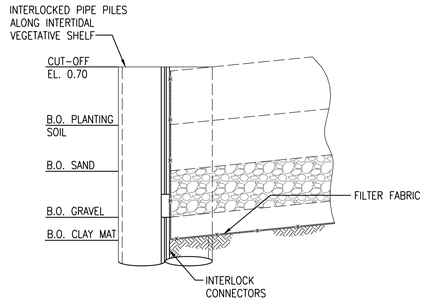
SOE-401



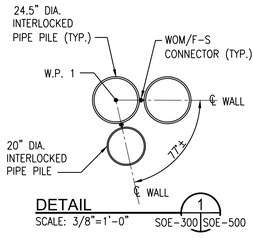
TYPICAL PIPE PILE CONNECTION DETAIL
SCALE: 3"=1'-0"



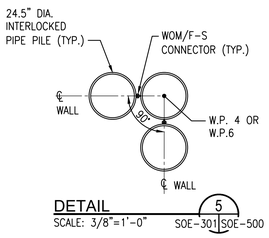
TYPICAL DRAINAGE HOLE DETAIL
SCALE: 3/4"=1'-0"



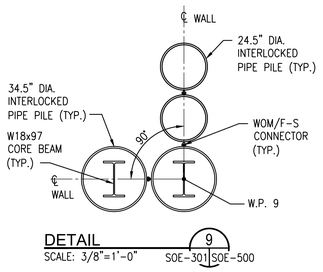
SECTION A
SCALE: 3/4"=1'-0"



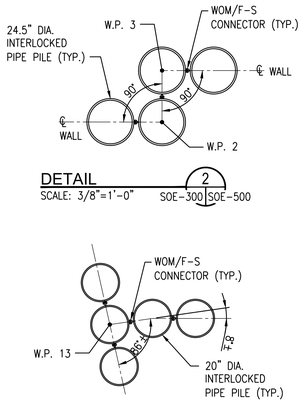
DETAIL 1
SCALE: 3/8"=1'-0" SOE-300 SOE-500



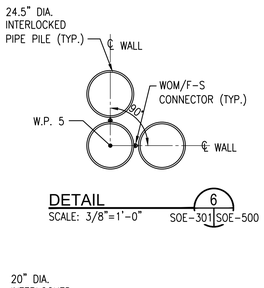
DETAIL 5
SCALE: 3/8"=1'-0" SOE-301 SOE-500



DETAIL 9
SCALE: 3/8"=1'-0" SOE-301 SOE-500



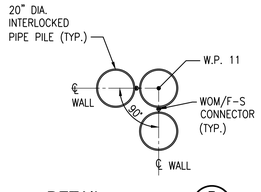
DETAIL 2
SCALE: 3/8"=1'-0" SOE-300 SOE-500



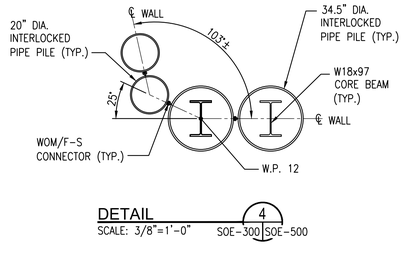
DETAIL 6
SCALE: 3/8"=1'-0" SOE-301 SOE-500

PIPE PILES:
34.5"x0.875": 152 NOS.
24.5"x.0875": 265 NOS.
20.0"x0.750": 255 NOS.

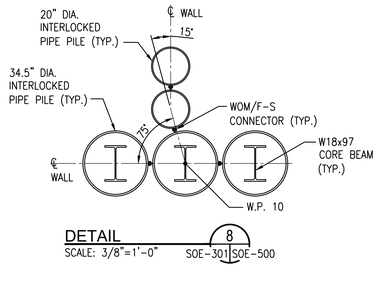
DETAIL 3
SCALE: 3/8"=1'-0" SOE-300 SOE-500



DETAIL 7
SCALE: 3/8"=1'-0" SOE-301 SOE-500



DETAIL 4
SCALE: 3/8"=1'-0" SOE-300 SOE-500



DETAIL 8
SCALE: 3/8"=1'-0" SOE-301 SOE-500

NO.	DATE	DESCRIPTIONS	BY	APPR'D
		REVISIONS		
0	1/24/2018	DRAFT PRELIMINARY DESIGN REPORT		
1	7/27/2018	FINALIZED PRELIMINARY DESIGN REPORT		
2	1/03/2019	90% DESIGN REPORT		

FINAL DESIGN SUBMITTED BY:
AKRF KSE
The AKRF-KSE JV

DESIGN PREPARED BY:
MRCE built on firm foundations
MUESER RUTLEDGE CONSULTING ENGINEERS
NAME OF CONSULTANT
SIGNATURE
DATE

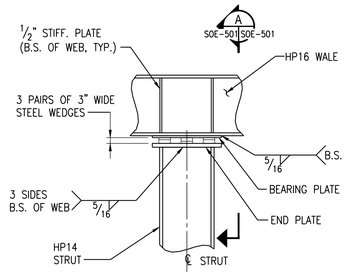
CITY OF NEW YORK
DEPARTMENT OF DESIGN + CONSTRUCTION
DIVISION OF INFRASTRUCTURE
BUREAU OF DESIGN

SUPPORT OF EXCAVATION
DETAILS

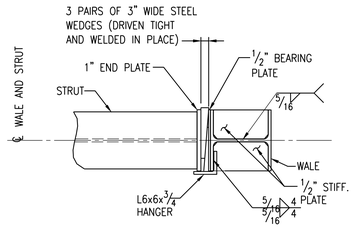
DRAWN BY
SOE-500.00.DWG
CADD FILE

FIRST STREET TURNING BASIN
GOWANUS CANAL
BROOKLYN, NEW YORK

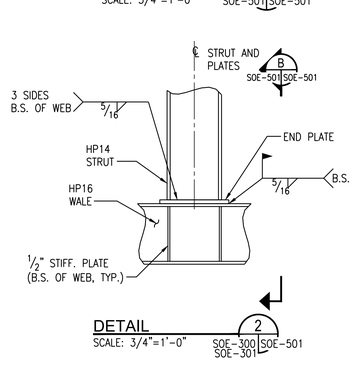
CAPITAL PROJECT NO. PW77GOWAN 03/28/19
SHEET 20 OF 32
SOE-500



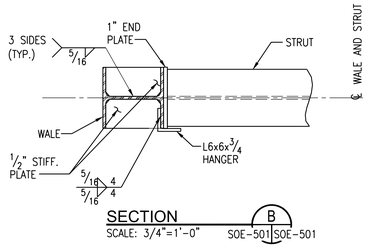
DETAIL 1
SCALE: 3/4"=1'-0"
SOE-300 SOE-501
SOE-301



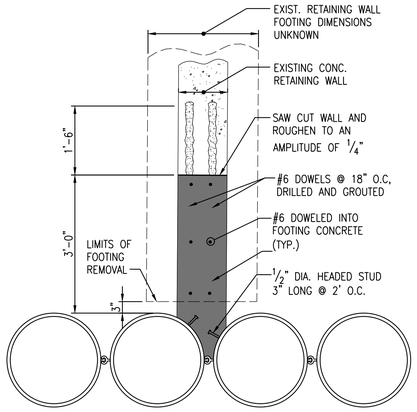
SECTION A
SCALE: 3/4"=1'-0"
SOE-501 SOE-501



DETAIL 2
SCALE: 3/4"=1'-0"
SOE-300 SOE-501
SOE-301

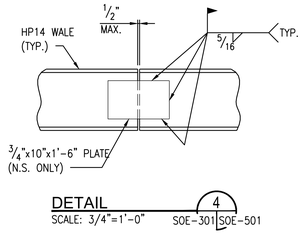


SECTION B
SCALE: 3/4"=1'-0"
SOE-501 SOE-501

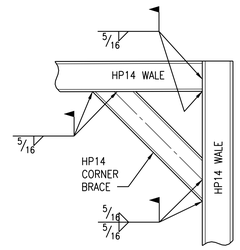


NOTE: EXISTING RETAINING WALL FOOTING SHALL BE SAW CUT WITH 3" CLEARANCE FROM INTERLOCKED PIPE PILE WALL

DETAIL 3
SCALE: 3/4"=1'-0"
SOE-300 SOE-501



DETAIL 4
SCALE: 3/4"=1'-0"
SOE-301 SOE-501



TYPICAL CORNER BRACE DETAIL
SCALE: 3/8"=1'-0"

NO.	DATE	DESCRIPTIONS	BY	APPR'D
0	1/03/2019	90% DESIGN REPORT		

REVISIONS

FINAL DESIGN SUBMITTED BY:
AKRF KSE
The AKRF-KSE JV

DESIGN PREPARED BY:
MRCE built on firm foundations
MUESER RUTLEDGE CONSULTING ENGINEERS
NAME OF CONSULTANT
SIGNATURE
DATE

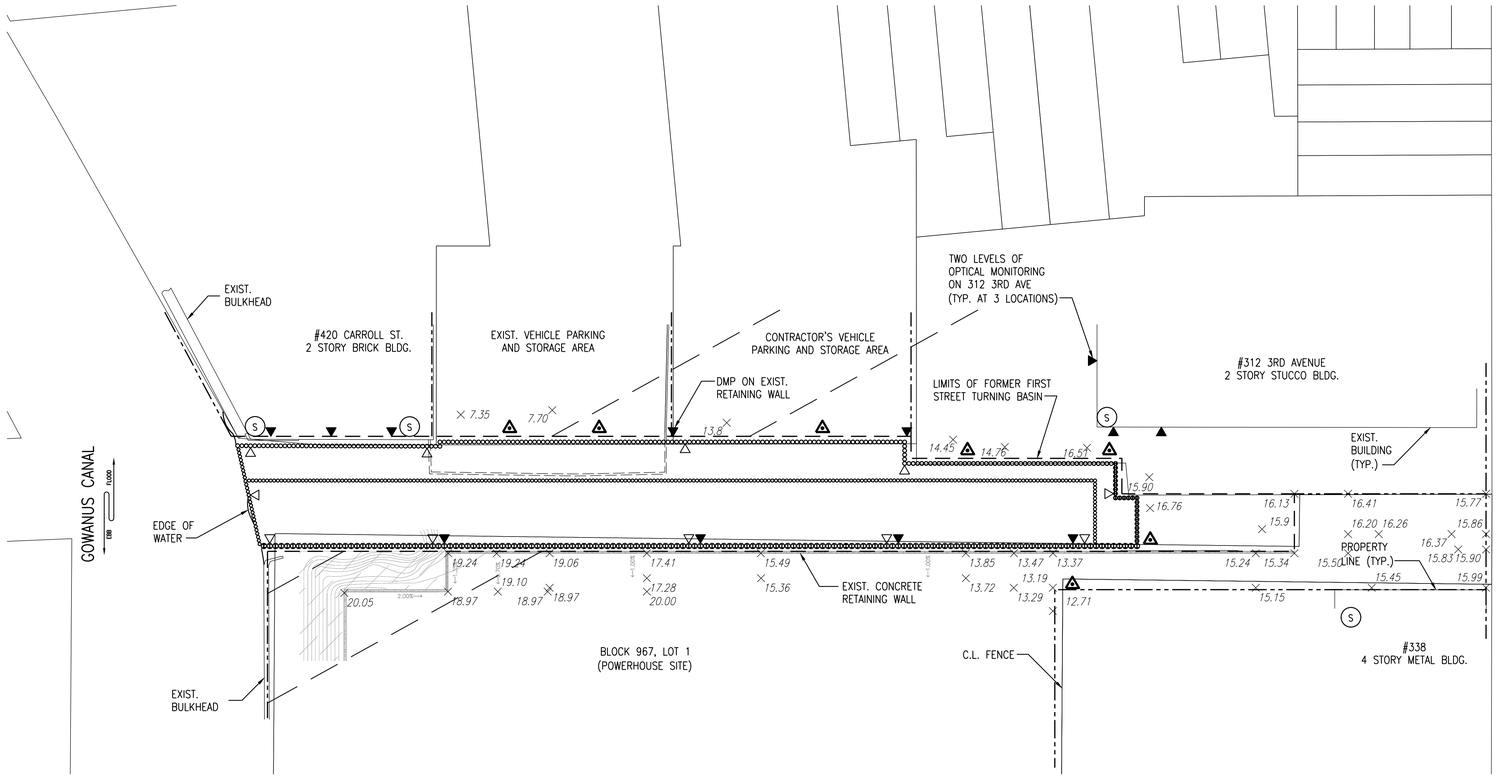
CITY OF NEW YORK
DEPARTMENT OF DESIGN + CONSTRUCTION
DIVISION OF INFRASTRUCTURE
BUREAU OF DESIGN

SUPPORT OF EXCAVATION DETAILS

DRAWN BY
SOE-501.00.DWG
CADD FILE

FIRST STREET TURNING BASIN
GOWANUS CANAL
BROOKLYN, NEW YORK

CAPITAL PROJECT NO. PW77GOWAN 03/28/19
SHEET 21 OF 32
SOE-501



NOTES:

1. FOR GENERAL NOTES, SEE DRAWING NO. T-001.
2. INSTRUMENTATION LAYOUT SHOWN HEREIN DEPICTS THE MINIMUM REQUIREMENTS. CONTRACTOR SHALL ENGAGE A GEOTECHNICAL INSTRUMENTATION ENGINEER (GIE) LICENSED IN THE STATE OF NEW YORK TO DEVELOP AN INSTRUMENTATION AND MONITORING PLAN AND IMPLEMENT IN ACCORDANCE WITH GEOTECHNICAL INSTRUMENTATION AND MONITORING SPECIFICATION, SECTION 31 09 13.
3. INSTRUMENT LOCATIONS ARE APPROXIMATE AND WILL BE ADJUSTED IN THE FIELD BASED UPON CONDITIONS ENCOUNTERED. FINAL INSTRUMENT LOCATIONS TO BE DETERMINED BY AVAILABILITY OF POWER, SIGHT LINES, ACCESSIBILITY AND FIELD CONDITIONS.
4. ALL INSTRUMENTS SHALL BE INSTALLED AND MAINTAINED BY THE GIE.
5. PRIOR TO INSTALLATION OF THE INSTRUMENTATION, THE CONTRACTOR SHALL PERFORM A PRE-CONSTRUCTION CONDITION SURVEY OF THE EXISTING BUILDINGS AND STRUCTURES IN ACCORDANCE WITH SPECIFICATION 31 09 13.
6. PRE-CONSTRUCTION CONDITION SURVEY SHALL BE PERFORMED AND MONITORING POINTS INSTALLED AT #420 CARROLL ST., RETAINING WALL TO THE EAST OF #420 CARROLL ST., #312 3RD AVENUE, #338 3RD AVENUE, RETAINING WALL TO THE WEST OF #338 3RD AVENUE AND BLOCK 967 LOT 1.

MONITORING LEGEND:

- (S) – SEISMOGRAPH (VIBRATION MONITOR)
- ▲ – DEFORMATION MONITORING POINT (STRUCTURE)
- △ – DEFORMATION MONITORING POINT (SOE)
- ◬ – DEFORMATION MONITORING POINT (GROUND)

P L A N

SCALE: 1/32"=1'-0"

TABLE 1 – MINIMUM MONITORING FREQUENCY AND CRITERIA

INSTRUMENTS	BASELINE	READING FREQUENCY	THRESHOLD CRITERIA	LIMITING CRITERIA
SEISMOGRAPH	ONE WEEK OF CONTINUOUS 15-MINUTE HISTOGRAM PRIOR TO START OF SITE WORK	CONTINUOUS 15-MINUTE HISTOGRAM SUPPLEMENTED WITH A WAVEFORM FOR EVENTS ABOVE THE THRESHOLD CRITERIA. MONITOR CONTINUOUSLY DURING SOE/EXCAVATION/BULKHEAD CONSTRUCTION.	0.5 INCH	1.0 INCH
DEFORMATION MONITORING POINTS (STRUCTURE)	PROVIDE THREE INDEPENDENT READING SETS OF X, Y, Z POSITION 2 DAYS PRIOR TO START OF SITE WORK	MONITOR ALL DMP'S FOUR TIMES PER DAY.	0.25 INCH	0.5 INCH
DEFORMATION MONITORING POINTS (SOE)	PROVIDE THREE INDEPENDENT READING SETS OF X, Y, Z POSITION PRIOR TO START OF EXCAVATION	MONITOR ALL DMP'S FOUR TIMES PER DAY.	1.0 INCH	2.0 INCHES
DEFORMATION MONITORING POINTS (GROUND)	PROVIDE THREE INDEPENDENT READING SETS OF X, Y, Z POSITION PRIOR TO START OF EXCAVATION	MONITOR ALL DMP'S FOUR TIMES PER DAY.	0.25 INCH	0.5 INCH

NO.	DATE	DESCRIPTIONS	BY	APPR'D
0	1/03/2019	90% DESIGN REPORT		

REVISIONS

FINAL DESIGN SUBMITTED BY:
AKRF | KSE
The AKRF-KSE JV

DESIGN PREPARED BY:
MRCE built on firm foundations
MUESER RUTLEDGE CONSULTING ENGINEERS
NAME OF CONSULTANT
SIGNATURE
DATE

CITY OF NEW YORK
DEPARTMENT OF DESIGN + CONSTRUCTION
DIVISION OF INFRASTRUCTURE
BUREAU OF DESIGN

GEOTECHNICAL INSTRUMENTATION AND MONITORING PLAN

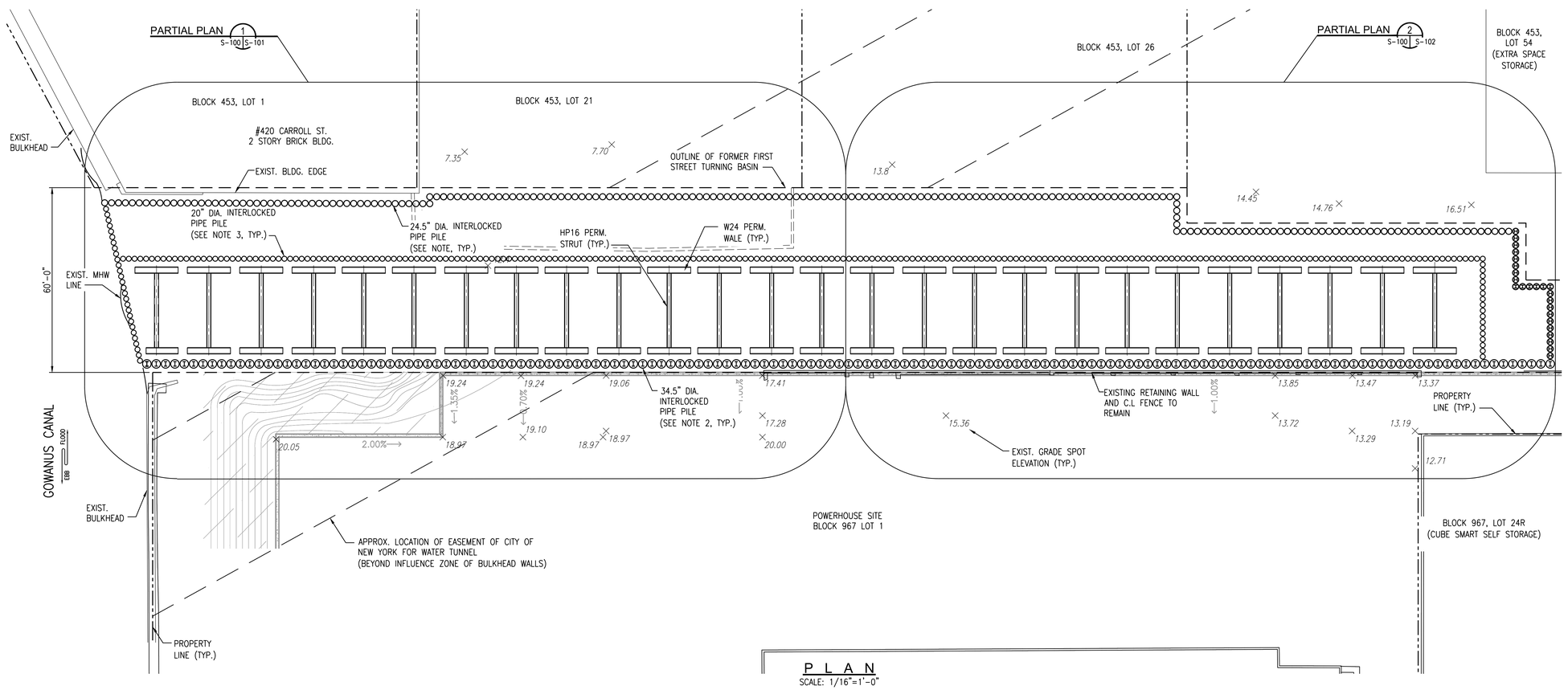
DRAWN BY
SOE-600.00.DWG
CADD FILE

FIRST STREET TURNING BASIN
GOWANUS CANAL
BROOKLYN, NEW YORK

CAPITAL PROJECT NO. PW77GOWAN 03/28/19

SHEET 22 OF 32

SOE-600



PLAN
SCALE: 1/16"=1'-0"

NOTES:

1. ALL 24.5" DIAMETER PIPE PILES SHALL BE EPOXY COATED FROM CUT-OFF ELEVATION TO MINIMUM EL. -10.
2. ALL 34.5" DIAMETER PIPE PILES SHALL BE EPOXY COATED FROM CUT-OFF ELEVATION TO MINIMUM EL. -20.
3. ALL PERMANENT 20" DIAMETER PIPE PILES SHALL BE EPOXY COATED FROM CUT-OFF ELEVATION TO MINIMUM EL. -20.

NO.	DATE	DESCRIPTIONS	BY	APPR'D
REVISIONS				
0	1/03/2019	90% DESIGN REPORT		

FINAL DESIGN SUBMITTED BY:
AKRF | KSE
The AKRF-KSE JV

DESIGN PREPARED BY:
MRCE built on firm foundations
MUESER RUTLEDGE CONSULTING ENGINEERS
NAME OF CONSULTANT
SIGNATURE
DATE

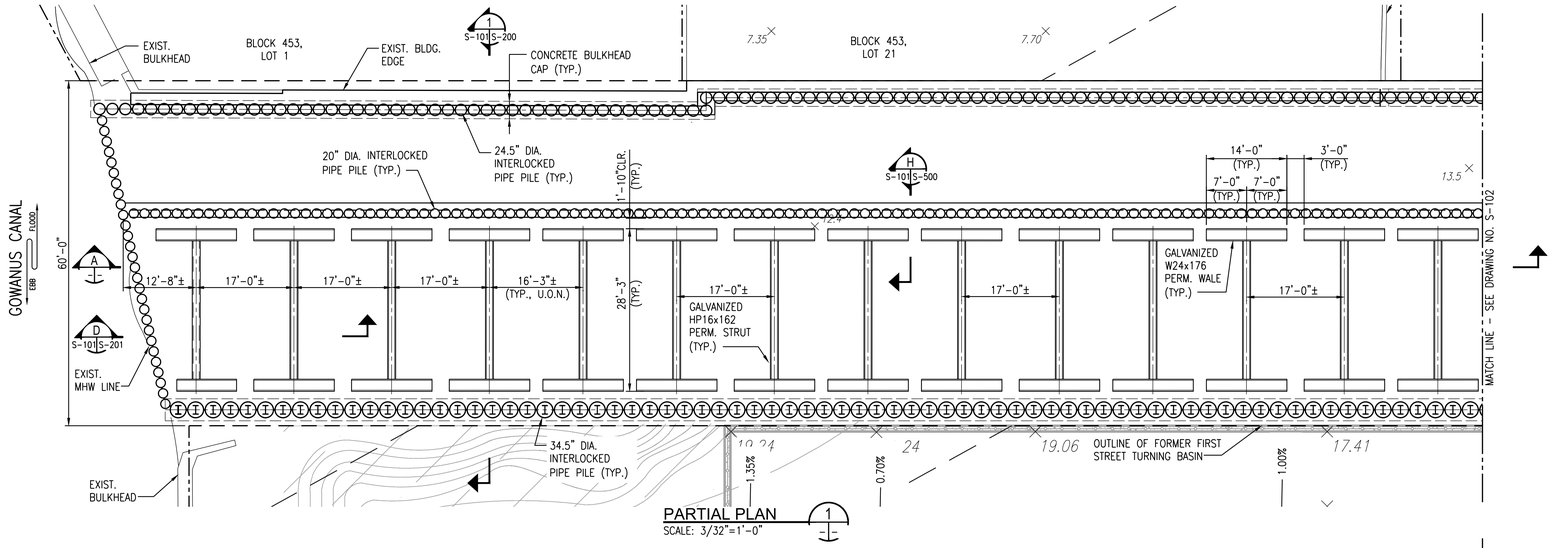
CITY OF NEW YORK
DEPARTMENT OF DESIGN + CONSTRUCTION
DIVISION OF INFRASTRUCTURE
BUREAU OF DESIGN

PERMANENT BULKHEAD BRACING
PARTIAL PLAN

DRAWN BY
S-100.00.DWG
CADD FILE

FIRST STREET TURNING BASIN
GOWANUS CANAL
BROOKLYN, NEW YORK

CAPITAL PROJECT NO. PW77GOWAN 03/28/19
SHEET 23 OF 32
S-100



NO.	DATE	REVISIONS DESCRIPTIONS	BY	APPR'D
0	1/24/2018	DRAFT PRELIMINARY DESIGN REPORT		
1	7/27/2018	FINALIZED PRELIMINARY DESIGN REPORT		
2	1/03/2019	90% DESIGN REPORT		

FINAL DESIGN SUBMITTED BY:
AKRF KSE
The AKRF-KSE JV

DESIGN PREPARED BY:
MRCE
MUESER RUTLEDGE CONSULTING ENGINEERS
NAME OF CONSULTANT
SIGNATURE
DATE

CITY OF NEW YORK
DEPARTMENT OF DESIGN + CONSTRUCTION
DIVISION OF INFRASTRUCTURE
BUREAU OF DESIGN

PERMANENT BULKHEAD BRACING
PARTIAL PLAN AND SECTION

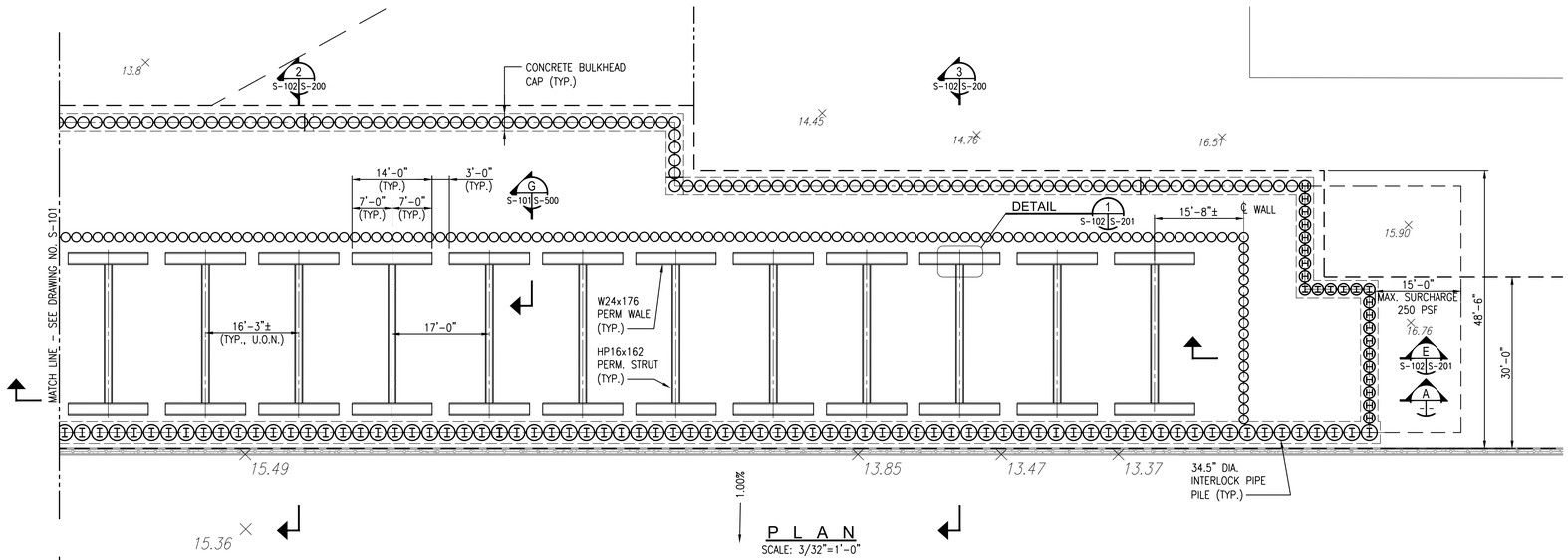
DRAWN BY
S-101.00.DWG
CADD FILE

FIRST STREET TURNING BASIN
GOWANUS CANAL
BROOKLYN, NEW YORK

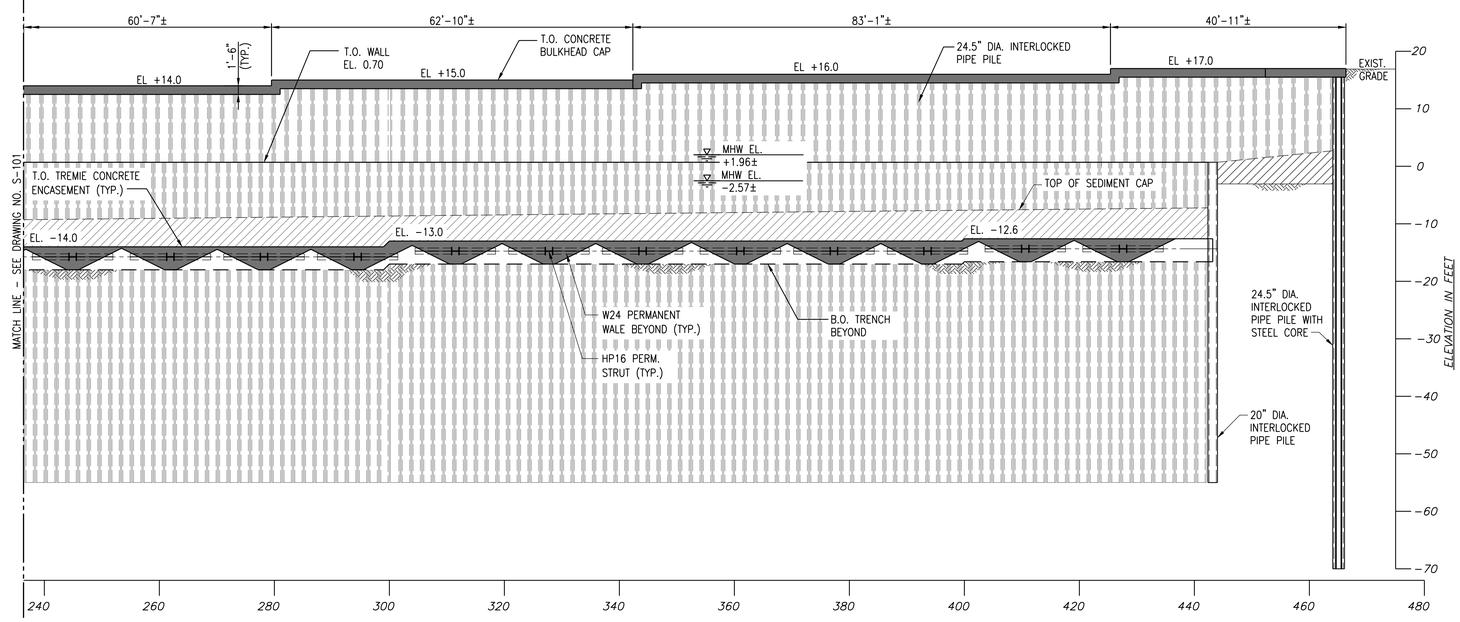
CAPITAL PROJECT NO. PW77GOWAN 03/28/19

SHEET 24 OF 32

S-101



P L A N
SCALE: 3/32"=1'-0"



SECTION A-A
SCALE: X"=1'-0"

NO.	DATE	REVISIONS DESCRIPTIONS	BY	APPR'D
0	1/24/2018	DRAFT PRELIMINARY DESIGN REPORT		
1	7/27/2018	FINALIZED PRELIMINARY DESIGN REPORT		
2	1/03/2019	90% DESIGN REPORT		

FINAL DESIGN SUBMITTED BY:
AKRF | KSE
The AKRF-KSE JV

DESIGN PREPARED BY:
MRCE
MUESSER RUTLEDGE CONSULTING ENGINEERS
NAME OF CONSULTANT
SIGNATURE
DATE

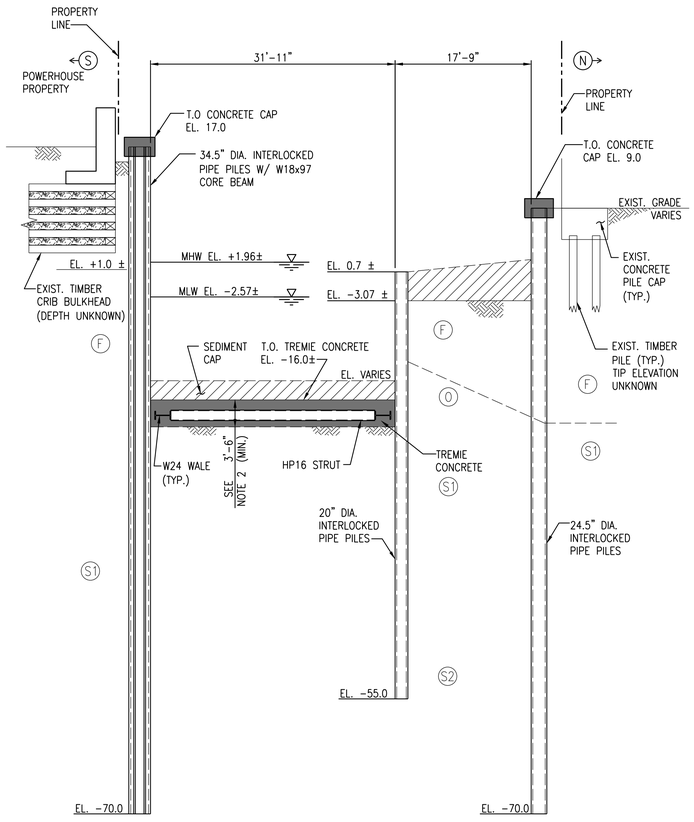
CITY OF NEW YORK
DEPARTMENT OF DESIGN + CONSTRUCTION
DIVISION OF INFRASTRUCTURE
BUREAU OF DESIGN

PERMANENT BULKHEAD BRACING
PARTIAL PLAN AND SECTION

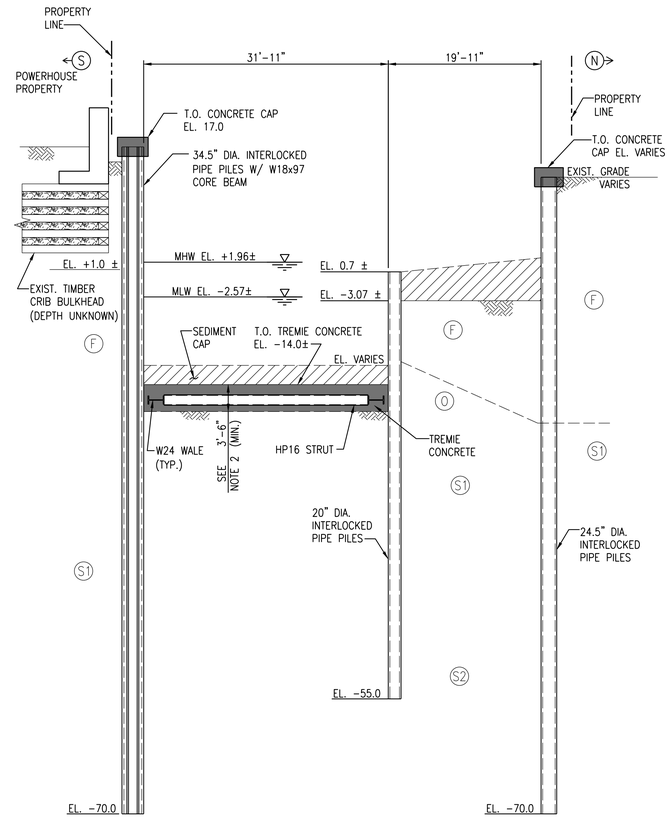
DRAWN BY
S-102.00.DWG
CADD FILE

FIRST STREET TURNING BASIN
GOWANUS CANAL
BROOKLYN, NEW YORK

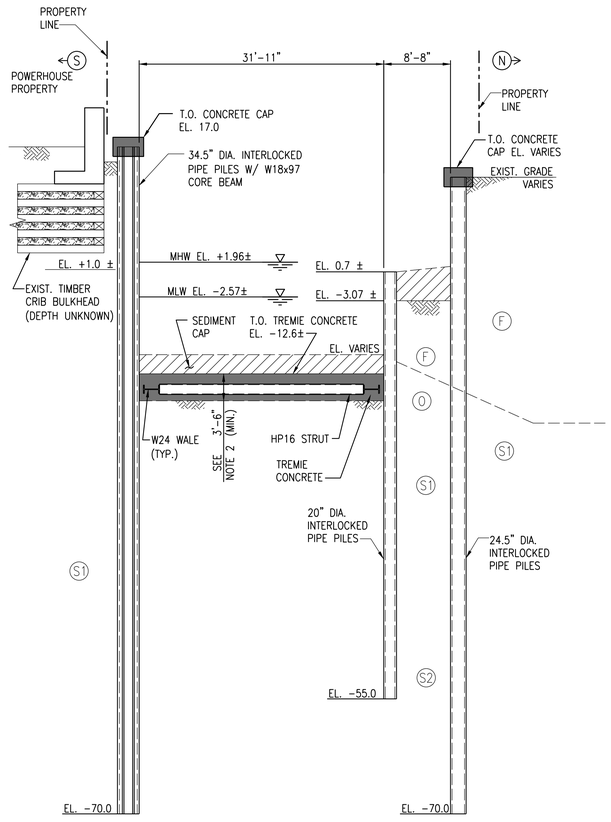
CAPITAL PROJECT NO. PW77GOWAN 03/28/19
SHEET 25 OF 32
S-102



SECTION 1
SCALE: 1/8"=1'-0"
S-101 | S-200



SECTION 2
SCALE: 1/8"=1'-0"
S-102 | S-200



SECTION 3
SCALE: 1/8"=1'-0"
S-102 | S-200

NOTES:

1. SOIL STRATA IS SHOWN FOR ILLUSTRATION PURPOSES ONLY. ACTUAL SOIL PROFILE VARIES. SEE GEOTECHNICAL REPORT FOR SUBSURFACE INFORMATION.
2. SEE DWG S-201 FOR TYPICAL TRENCH DETAIL.

NO.	DATE	REVISIONS DESCRIPTIONS	BY	APPR'D
0	1/24/2018	DRAFT PRELIMINARY DESIGN REPORT		
1	7/27/2018	FINALIZED PRELIMINARY DESIGN REPORT		
2	1/03/2019	90% DESIGN REPORT		

FINAL DESIGN SUBMITTED BY:
AKRF KSE
The AKRF-KSE JV

DESIGN PREPARED BY:
MRCE built on firm foundations
MUESER RUTLEDGE CONSULTING ENGINEERS
NAME OF CONSULTANT
SIGNATURE
DATE

CITY OF NEW YORK
DEPARTMENT OF DESIGN + CONSTRUCTION
DIVISION OF INFRASTRUCTURE
BUREAU OF DESIGN

PERMANENT BULKHEAD SECTIONS

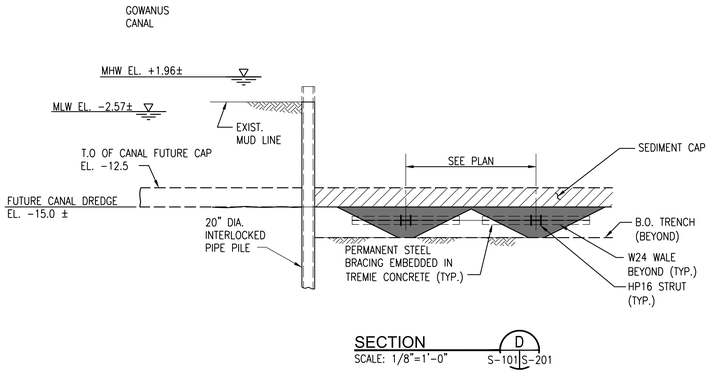
DRAWN BY
S-200.00.DWG
CADD FILE

FIRST STREET TURNING BASIN
GOWANUS CANAL
BROOKLYN, NEW YORK

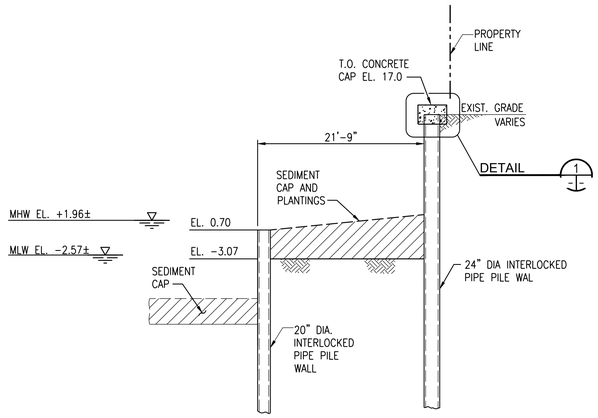
CAPITAL PROJECT NO. PW77GOWAN 03/28/19

SHEET 26 OF 32

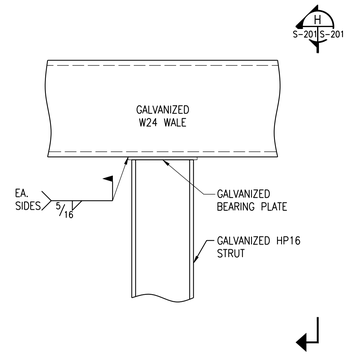
S-200



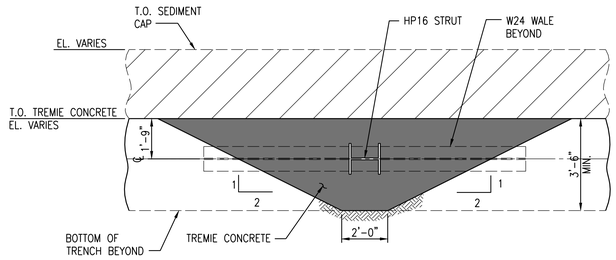
SECTION D
SCALE: 1/8"=1'-0" S-101 S-201



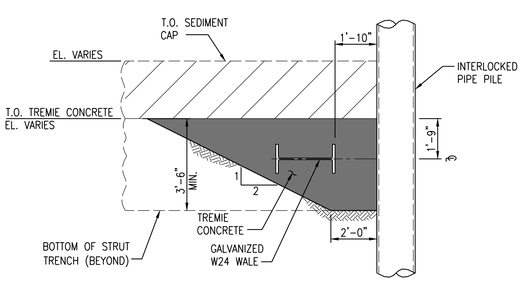
SECTION E
SCALE: 1/8"=1'-0" S-102 S-201



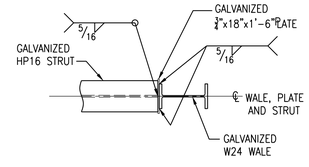
DETAIL 1
SCALE: 3/4"=1'-0" S-102 S-201



SECTION F
SCALE: 3/8"=1'-0" S-101,S-102 S-201



SECTION G
SCALE: 3/8"=1'-0" S-101 S-102 S-201



SECTION H
SCALE: 3/8"=1'-0" S-201 S-201

NO.	DATE	REVISIONS DESCRIPTIONS	BY	APPR'D
0	1/24/2018	DRAFT PRELIMINARY DESIGN REPORT		
1	7/27/2018	FINALIZED PRELIMINARY DESIGN REPORT		
2	1/03/2019	90% DESIGN REPORT		

FINAL DESIGN SUBMITTED BY:
AKRF KSE
The AKRF-KSE JV

DESIGN PREPARED BY:
MRCE
MUESER RUTLEDGE CONSULTING ENGINEERS
NAME OF CONSULTANT
SIGNATURE
DATE

CITY OF NEW YORK
DEPARTMENT OF DESIGN + CONSTRUCTION
DIVISION OF INFRASTRUCTURE
BUREAU OF DESIGN

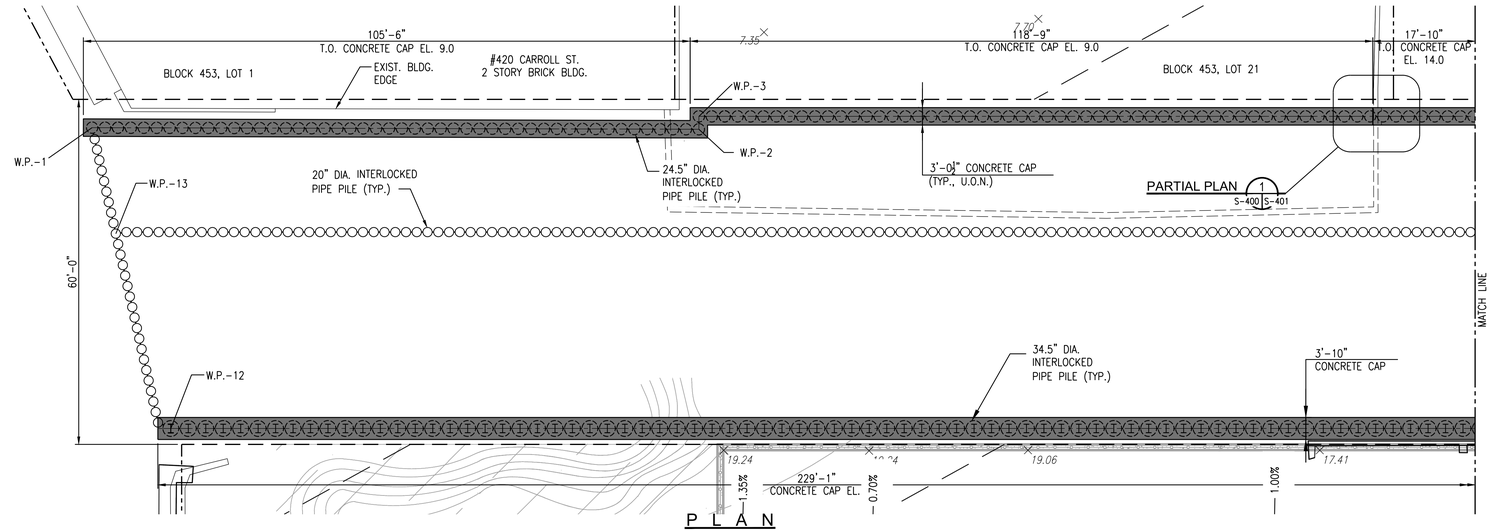
PERMANENT BULKHEAD SECTIONS AND DETAILS

DRAWN BY
S-201.00.DWG
CADD FILE

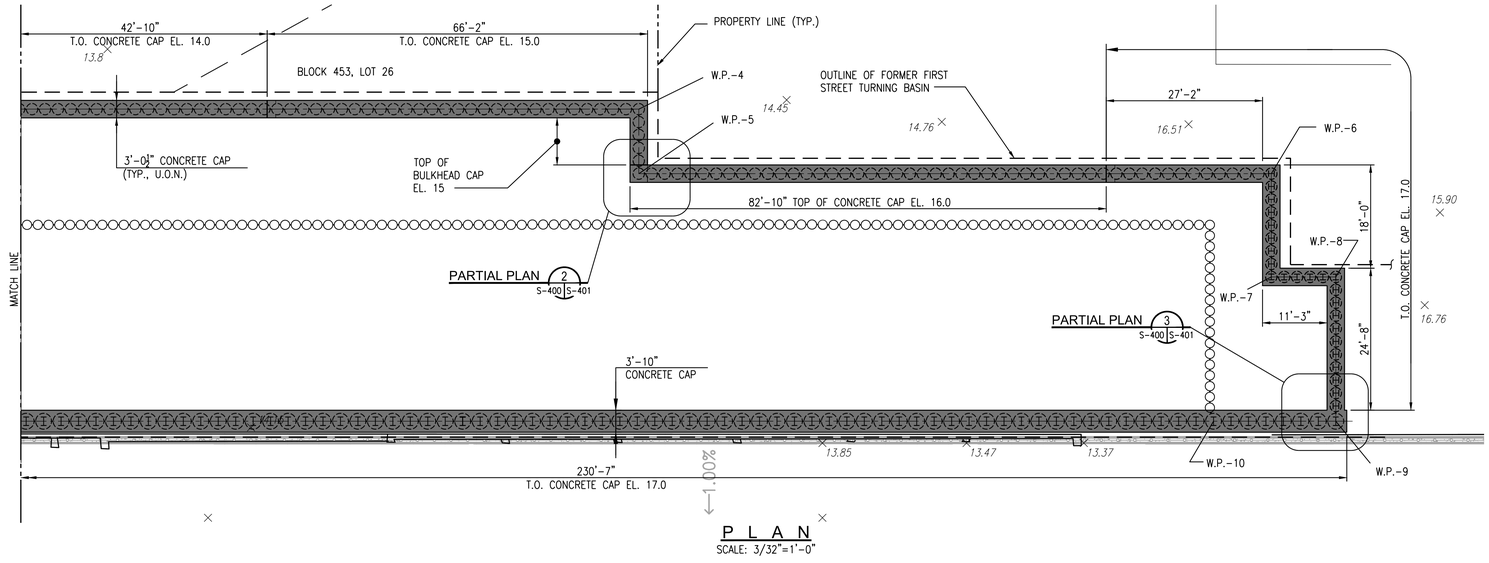
FIRST STREET TURNING BASIN
GOWANUS CANAL
BROOKLYN, NEW YORK

CAPITAL PROJECT NO. PW77GOWAN 03/28/19

SHEET 27 OF 32 S-201



P L A N
SCALE: 3/32"=1'-0"



P L A N
SCALE: 3/32"=1'-0"

NO.	DATE	REVISIONS DESCRIPTIONS	BY	APPR'D
0	1/03/2019	90% DESIGN REPORT		

FINAL DESIGN SUBMITTED BY:
AKRF KSE
The AKRF-KSE JV

DESIGN PREPARED BY:
MRCE
built on firm foundations
MUESER RUTLEDGE CONSULTING ENGINEERS
NAME OF CONSULTANT
SIGNATURE
DATE

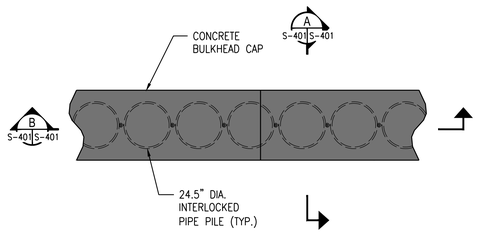
CITY OF NEW YORK
DEPARTMENT OF DESIGN + CONSTRUCTION
DIVISION OF INFRASTRUCTURE
BUREAU OF DESIGN

PERMANENT BULKHEAD CONCRETE CAP PLAN

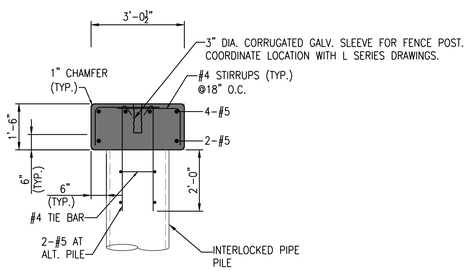
DRAWN BY
S-400.00.DWG
CADD FILE

FIRST STREET TURNING BASIN
GOWANUS CANAL
BROOKLYN, NEW YORK

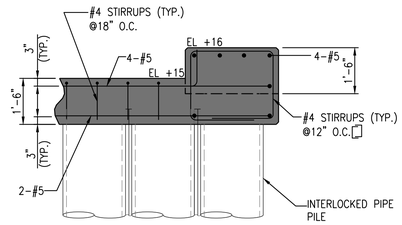
CAPITAL PROJECT NO. PW77GOWAN 03/28/19
SHEET 28 OF 32
S-400



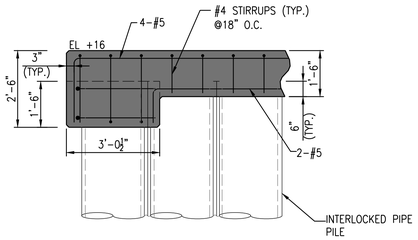
PARTIAL PLAN 1
SCALE: 3/8"=1'-0" S-400 S-401



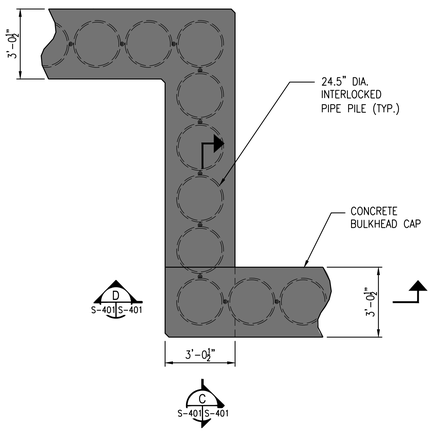
SECTION A
1/2"=1'-0" S-401 S-401



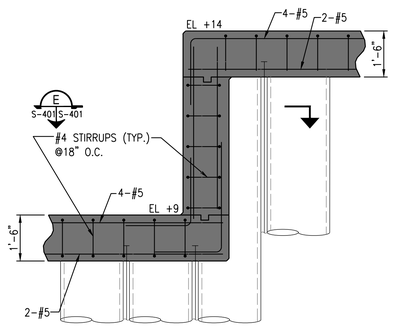
SECTION C
1/2"=1'-0" S-401 S-401



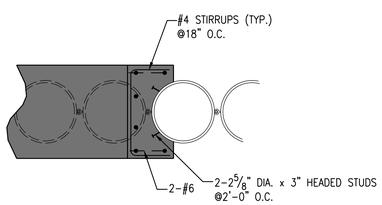
SECTION D
1/2"=1'-0" S-401 S-401



PARTIAL PLAN 2
SCALE: 3/8"=1'-0" S-400 S-401

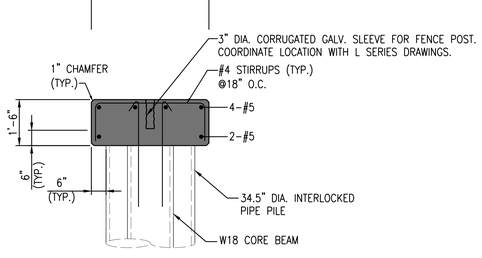


SECTION B
1/2"=1'-0" S-401 S-401

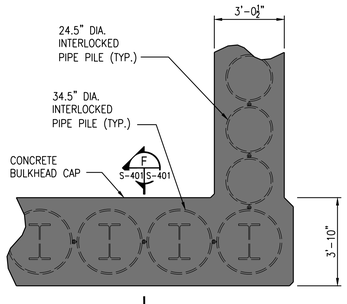


NOTE: PILE REINFORCEMENT NOT SHOWN.

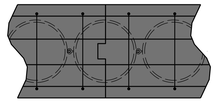
SECTION E
1/2"=1'-0" S-401 S-401



SECTION F
1/2"=1'-0" S-401 S-401



PARTIAL PLAN 3
SCALE: 3/8"=1'-0" S-400 S-401



TYPICAL CONSTRUCTION JOINT
SCALE: 1/2"=1'-0"

NO.	DATE	REVISIONS DESCRIPTIONS	BY	APPR'D
0	1/03/2019	90% DESIGN REPORT		

FINAL DESIGN SUBMITTED BY:
AKRF KSE
The AKRF-KSE JV

DESIGN PREPARED BY:
MRCE
MUESER RUTLEDGE CONSULTING ENGINEERS
NAME OF CONSULTANT
SIGNATURE
DATE

CITY OF NEW YORK
DEPARTMENT OF DESIGN + CONSTRUCTION
DIVISION OF INFRASTRUCTURE
BUREAU OF DESIGN

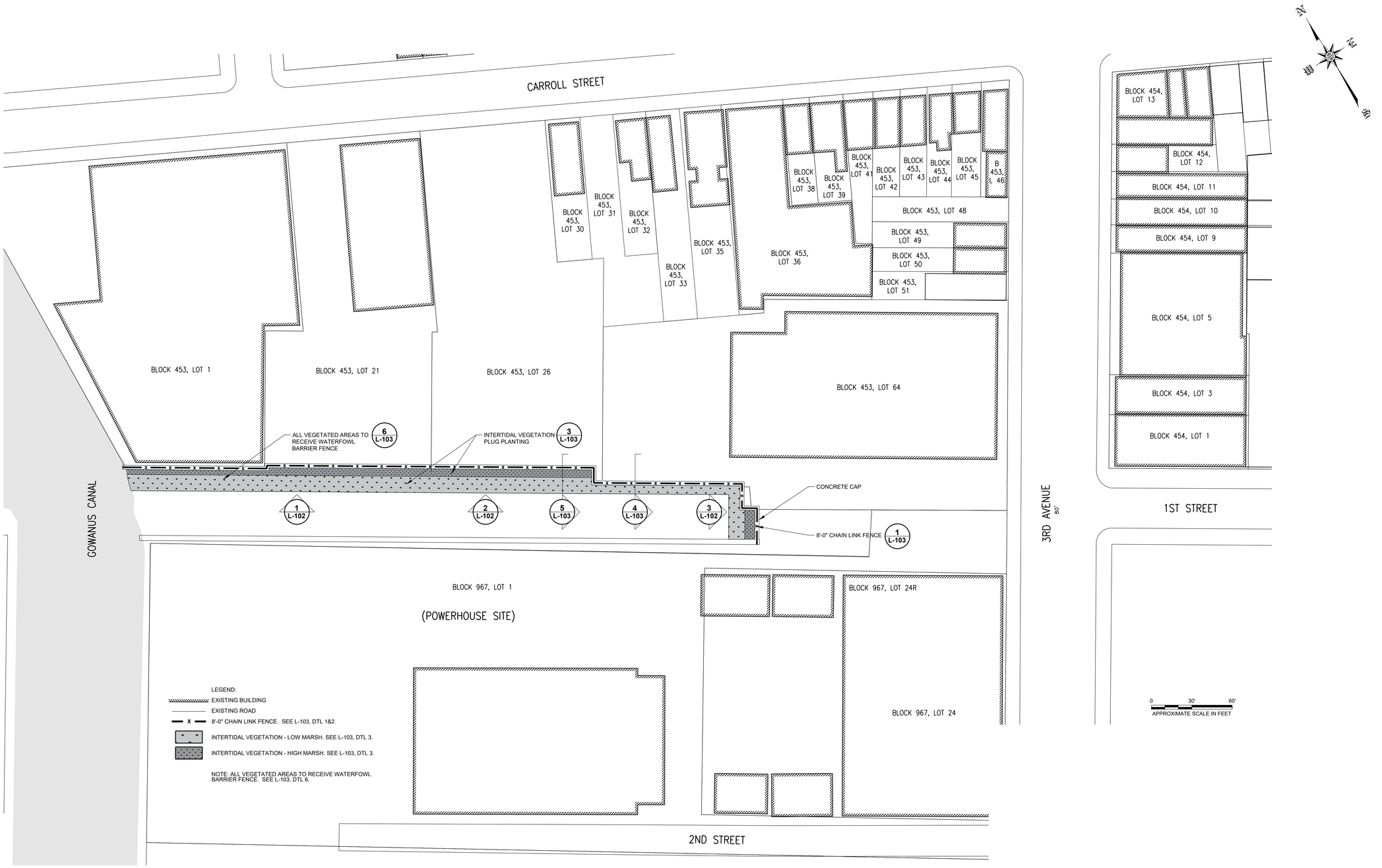
PERMANENT BULKHEAD CAP PLANS, SECTIONS, AND DETAILS

DRAWN BY
S-401.00.DWG
CADD FILE

FIRST STREET TURNING BASIN
GOWANUS CANAL
BROOKLYN, NEW YORK

CAPITAL PROJECT NO. PW77GOWAN 03/28/19

SHEET 29 OF 32 S-401



NO.	DATE	DESCRIPTIONS	BY	APPR'D
0	1/03/2019	90% DESIGN REPORT		

REVISIONS

FINAL DESIGN SUBMITTED BY:
AKRF | KSE
The AKRF-KSE JV

DESIGN PREPARED BY:
MNLA
MATHEWS NIELSEN LANDSCAPE ARCHITECTS
NAME OF CONSULTANT
SIGNATURE
DATE

CITY OF NEW YORK
DEPARTMENT OF DESIGN + CONSTRUCTION
DIVISION OF INFRASTRUCTURE
BUREAU OF DESIGN

LANDSCAPE PLAN

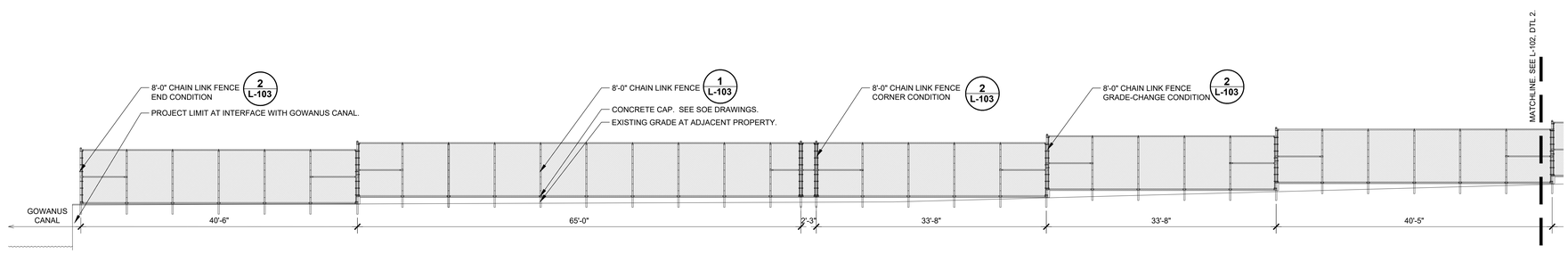
DRAWN BY
L_101.DWG
CADD FILE

FIRST STREET TURNING BASIN
GOWANUS CANAL
BROOKLYN, NEW YORK

CAPITAL PROJECT NO. PW77GOWAN 03/28/19

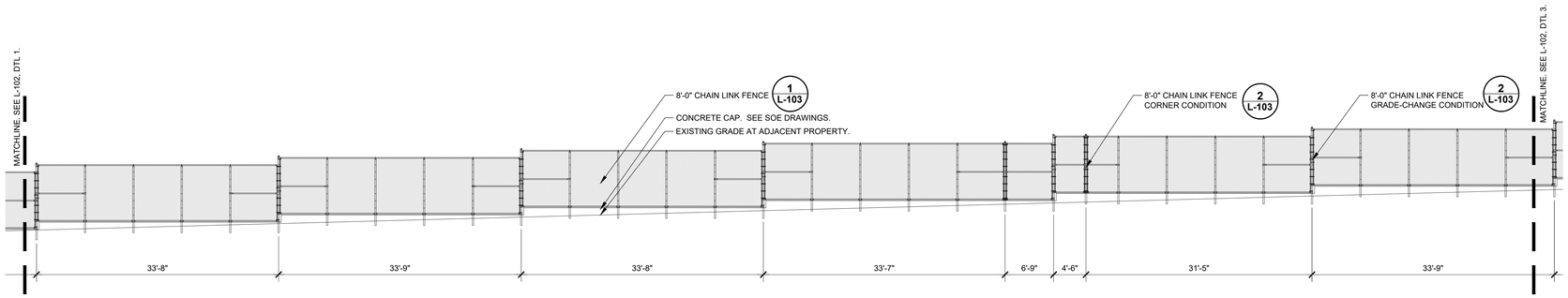
SHEET 30 OF 32

L-101



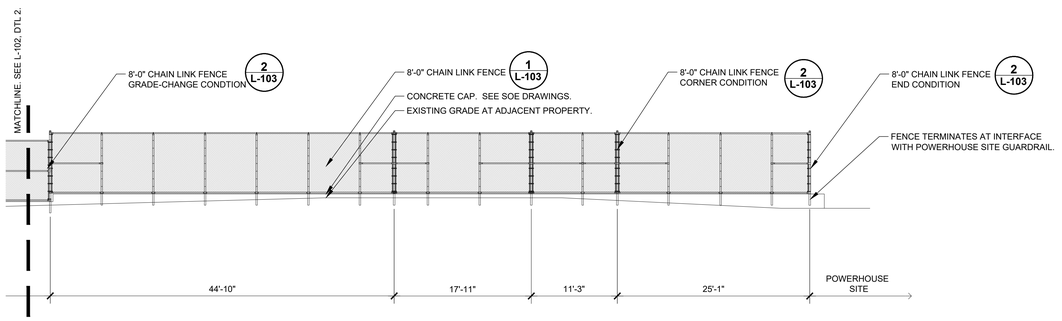
1 L-102 **FENCE ELEVATION**

SCALE: 1/8" = 1'-0"



2 L-102 **FENCE ELEVATION - CONT.**

SCALE: 1/8" = 1'-0"



2 L-102 **FENCE ELEVATION - CONT. 2**

SCALE: 1/8" = 1'-0"

NO.	DATE	DESCRIPTIONS	BY	APPR'D
0	1/03/2019	90% DESIGN REPORT		

REVISIONS

FINAL DESIGN SUBMITTED BY:
AKRF | KSE
The AKRF-KSE JV

DESIGN PREPARED BY:
MNLA
MATHEWS NIELSEN LANDSCAPE ARCHITECTS
NAME OF CONSULTANT
SIGNATURE
DATE

CITY OF NEW YORK
DEPARTMENT OF DESIGN + CONSTRUCTION
DIVISION OF INFRASTRUCTURE
BUREAU OF DESIGN

LANDSCAPE ELEVATIONS

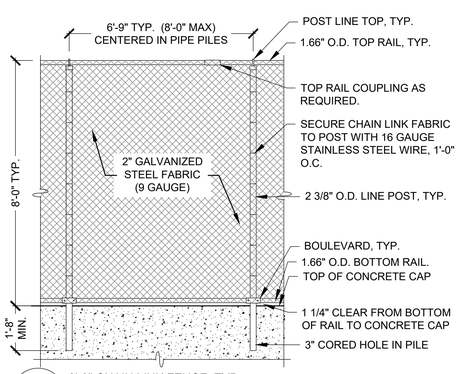
DRAWN BY
L_102.DWG
CADD FILE

FIRST STREET TURNING BASIN
GOWANUS CANAL
BROOKLYN, NEW YORK

CAPITAL PROJECT NO. PW77GOWAN 03/28/19

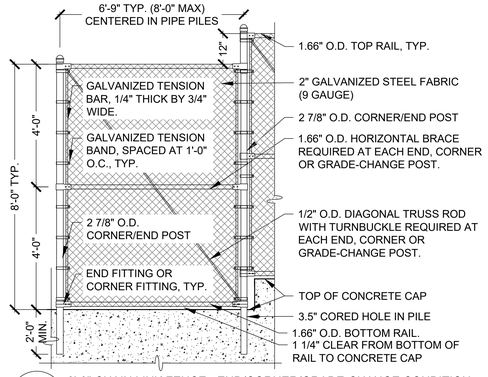
SHEET 31 OF 32

L-102



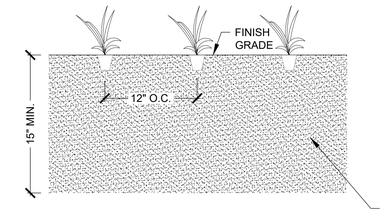
1 L-103 **8'-0" CHAIN LINK FENCE, TYP.**

SCALE: 1/2" = 1'-0"

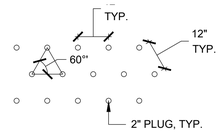


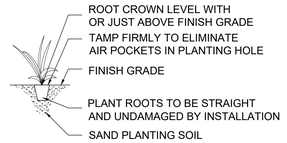
2 L-103 **8'-0" CHAIN LINK FENCE - END/CORNER/GRADE-CHANGE CONDITION**

SCALE: 1/2" = 1'-0"



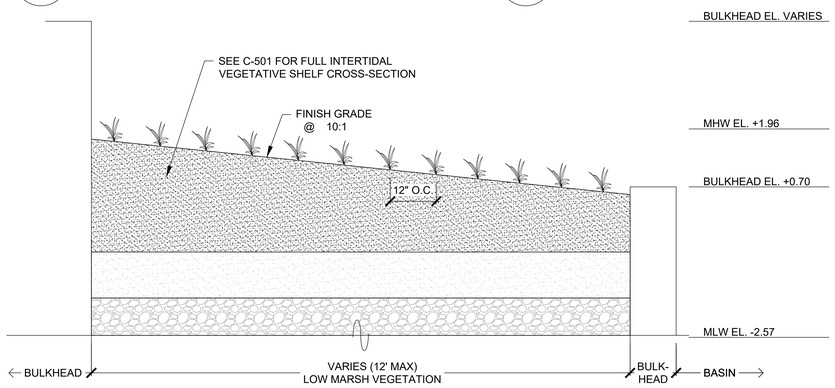
NOTES:
1. LEAVES AND ROOT CROWN TO REMAIN UNDAMAGED DURING PLANTING
2. CREATE PLANTING HOLE BY DRIVING STEEL SPIKE INTO SOIL AND WORKING SPIKE TO WIDEN HOLE
3. REMOVE ALL WIRE, PLASTIC, TAGS OR SYNTHETIC MATERIAL FROM PLANTS PRIOR TO PLANTING





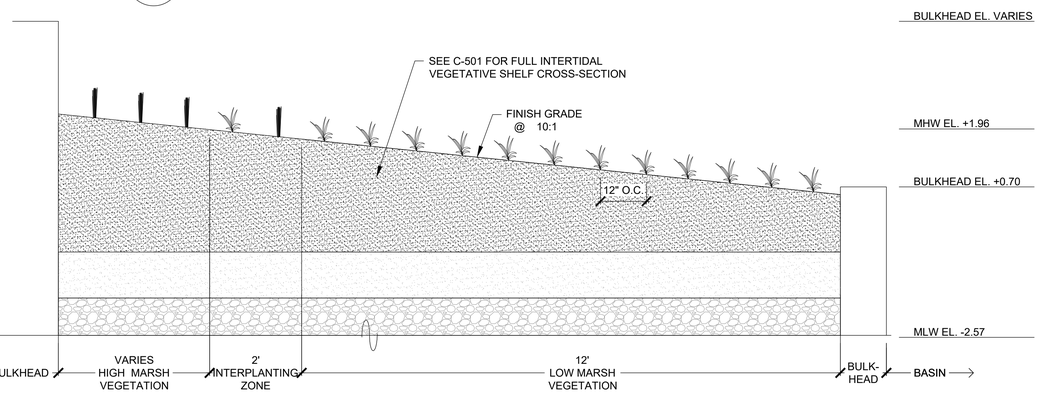
3 L-103 **INTERTIDAL VEGETATION PLUG PLANTING**

SCALE: 1-1/2" = 1'-0"



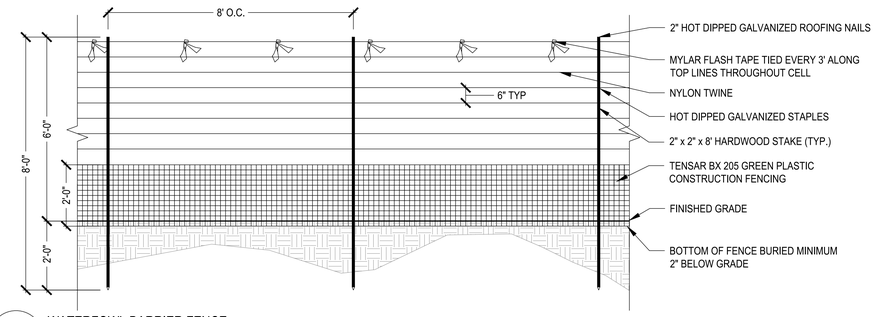
4 L-103 **INTERTIDAL VEGETATIVE SHELF - LOW MARSH PLANTING SECTION**

SCALE: 3/4" = 1'-0"



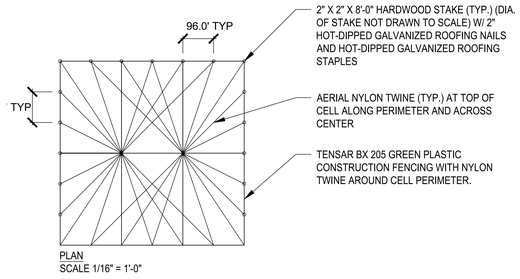
5 L-103 **INTERTIDAL VEGETATIVE SHELF - HIGH AND LOW MARSH PLANTING SECTION**

SCALE: 3/4" = 1'-0"



6 L-103 **WATERFOWL BARRIER FENCE**

SCALE: 1/2" = 1'-0"



PLAN
SCALE 1/16" = 1'-0"

NO.	DATE	DESCRIPTIONS	BY	APPR'D
0	1/03/2019	90% DESIGN REPORT		

REVISIONS

FINAL DESIGN SUBMITTED BY:
AKRF | KSE
The AKRF-KSE JV

DESIGN PREPARED BY:
MNLA
MATHEWS NIELSEN LANDSCAPE ARCHITECTS
NAME OF CONSULTANT
SIGNATURE
DATE

CITY OF NEW YORK
DEPARTMENT OF DESIGN + CONSTRUCTION
DIVISION OF INFRASTRUCTURE
BUREAU OF DESIGN

LANDSCAPE DETAILS

DRAWN BY
L_103.DWG
CADD FILE

FIRST STREET TURNING BASIN
GOWANUS CANAL
BROOKLYN, NEW YORK

CAPITAL PROJECT NO. PW77GOWAN 03/28/19

SHEET 32 OF 32 L-103