CHARLES PENZONE GRAND SALON

CITY OF DUBLIN, FRANKLIN COUNTY, OHIO

STORM WATER MANAGEMENT REPORT

Prepared By:

ADVANCED
CIVIL DESIGN

ENGINEERS & SURVEYORS
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Date:
March 4, 2016

Site Summary:
This report details the stormwater management system of the proposed development of a Charles Penzone Grand Salon and associated parking in the City of Dublin, Ohio. The subject property is located near the northwest corner of the intersection of Village Parkway and Shamrock Blvd. The subject parcel area is approximately 1.83 acres. Stormwater management will be provided for the site as required by Dublin's Stormwater Management Design Manual, dated June, 2013, following the "AMC Theatre Expansion" Record Plans, dated "As Constructed" June, 1991 and the "Dublin Village Center" Record Calculations, dated December 17, 1990.

Existing Conditions:
A review of Franklin County soil maps shows that this site is underlain predominantly by Crosby silt-loam with a small fraction of Kokomo silt-loam. These soils, when drained, are classified within Hydrologic soil group C. Terrain on the site general slopes from the east to the west, draining into an existing storm water basin on the parcel west of the project site, which ultimately drains to the Scioto River. Land cover on this parcel is a mix of grass in woods, both in good hydrologic condition. Runoff from the project site was calculated as tributary to the existing storm water basin to the west, at a developed curve number of 95. See Appendix A for Record Documents.

Proposed Conditions:
The proposed Charles Penzone Grand Salon development will include the construction of a commercial building with associated parking lot. Grading will direct surface runoff into a proposed storm sewer system within the parking and drive aisles. A manufactured water quality device will be placed in the storm sewer system to treat the storm water prior to releasing into the existing public storm sewer system that runs along the southern property line and existing storm water basin. Post-Developed watershed area summarized in Table 1 below.

Sub-Watershed	**Drainage Area** (acre)	**Curve Number**	**Time of Concentration** (min)
1	1.834	91	5

Table 1
Post-Developed Watershed Summary

Storm Water Quantity Control
The project site was calculated as tributary area for the existing storm water basin to the west of the project site. Onsite water quantity is not required for the proposed site; the existing storm water basin will be utilized for storm water quantity control as it was designed. The proposed site will release less runoff having a proposed curve number of 91, than the record documents calculated using the curve number 95. With the runoff volume being less in the proposed site than the calculated site there is no critical storm control. See Appendix A for Record Documents.

Storm Water Quality Control
Per the Dublin stormwater manual, a stormwater BMP is required to provide treatment of the "first flush" of stormwater runoff, corresponding to a 0.75" rainfall event. This requirement will be met by the installing a manufactured water quality device, due to not needing to provide on-site storage and the limited opportunity to provide open space for a water quality facility. Determination of the required treatment flow for this device followed the guidance of the Ohio Department of Transportation's L&D Manual, Vol. 2, and Section 1115.5.:

WQf = Cia ("C"=0.83 * "i"=0.65 in./hr. * "a"=1.834 ac.)

$0.83*0.65*1.834 = 0.99$ WQf

A WQ_f of 0.99 cfs can be treated by an ODOT Type 1 WQ unit with a 6” high weir wall. A 4-ft diameter Downstream Defender, manufactured by Hydro International was selected from ODOT’s list of qualified manufactured units to be used as the post-construction stormwater BMP on this site. Detailed calculations and specifications are included in Appendix D of this report.

Conclusion

The proposed Charles Penzone Grand Salon stormwater management system will provide water quality control in compliance with the City of Dublin’s Stormwater Management Design Manual. A Hydro International 4’ Dia. Downstream Defender will address water quality treatment of the “first flush” of stormwater runoff. Stormwater leaving the site will enter public storm sewers along the southern property line at a lower release rate than the record documents calculated, with a lower developed curve number. Water quantity will be provided in the existing storm water basin to the west of the project site as designed in the record documents.

APPENDIX A

RECORD DOCUMENTS

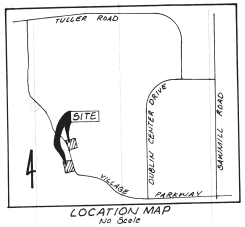
LEGEND

- 94.00 ~ Proposed Elevation (+800 for U.S.G.S.)
- SF ~ Existing Storm Sewer
- ~ Proposed Storm Sewer
- W ~ Ex. Water Line
- SA ~ Existing Sanitary Sewer
- 893 ~ Existing Contour
- 892 ~ Proposed Contour

REFERENCE DRAWINGS

CITY OF COLUMBUS	CITY OF DUBLIN	O.D.O.T.
AA-5100		11
AA-5101	AA-5119	13
AA-5109	AA-5133	14
AA-5112	AA-5139	18
	AA-5132	
	AA-5138	

The Reference Drawings listed on these plans shall be considered a part thereof.



LOCATION MAP
No Scale

ESTIMATE OF QUANTITIES

ITEM	QUANTITY	UNIT	DESCRIPTION
202	190	L.F.	Pipe Removed & Disposed of
202	192	L.F.	Paved Channel Removed & Disposed of
602	26	C.Y.	Concrete Masonry
604	2	Ea.	42"Ø Catch Basin (AA-5132)
604	2	Ea.	Manholes, Type A (1-Cl.'B' & 1-Cl.'E')
604	2	Ea.	Manholes, Type B (1-Cl.'E', 1-Cl.'G')
604	2	Ea.	Std. Catch Basin, AA-5133 (2-2B)
604	2	Ea.	Manholes, Precast Concrete
901	185	L.F.	8" Storm Sewer (ASTM D-3034 PVC)
901	178	L.F.	12" Storm Sewer C-76, Cl. IV
901	394	L.F.	15" Storm Sewer C-76, Cl. IV
901	238	L.F.	18" Storm Sewer C-76, Cl. III
901	43	L.F.	21" Storm Sewer, C-76, Cl. III
913	431	L.F.	Channel Construction, Paved, Reinforced Conc.
915	4	Ea.	8"x6" Wye
915	2	Ea.	Cleanout
918	215	L.F.	6" Sanitary Service
901	352	L.F.	8" Sanitary Sewer Pipe
901	292	L.F.	27" Storm Sewer, C-76, Cl. II
901	485	L.F.	54" Storm Sewer, C-76, Cl. II
601	6	C.Y.	Rock Channel Protection Type 'B' w/o Filter
Special	470	L.F.	Temp. Ditch outlets including Seeding & Erosion Prot.

BENCH MARKS

B.P. on south end of east curb of the Sawmill Road northbound B.R. of I-270, 0.98 mile north of junction of S.R. 161, 16.2 feet east of centerline of pavement of Sawmill Road northbound lanes

Elev. ~ 915.59

North bolt of light standard located in west line of Cadillac Dealership and being 705.3' west of centerline of Sawmill Road and 4th light standard south of the Cadillac Dealership's north property line.

Elev. ~ 912.38

GENERAL NOTES

The City of Columbus 'Construction and Material Specifications' dated 1988, including all supplements thereto shall govern this work except as such specifications are modified by indicated notes or details.

The Contractor shall investigate and locate all utilities prior to construction.

At all points of crossing water mains or other sewers, the backfill shall be of compacted granular material between the deeper and shallower pipe.

Unless otherwise noted, all storm sewers shall be backfilled with compacted granular material as per Dublin Specifications.

Compaction at all drives shall be as per Item 911.

During curb and gutter removal for the installation of the entrance drive the shortest length of existing curb left in place shall be 5 feet.

All catch basins located within paved areas shall be constructed with a heavy duty frame and grate Neenah R-4859 w/ lugs and Neenah R-4852 or approved equal.

The Developer shall provide a proof survey prepared and submitted by a registered surveyor documenting the as-built storm drainage system. As a minimum, this proof survey shall include by location:

1. Pipe type, size, length, slope, inlet and outlet flowline elevations and alignment.
2. Catch basin, inlet and manhole alignment, elevation of top of casting and flowline.

Stand-by inspection by the City of Dublin is mandatory during construction.

All designs shall meet the minimum construction guidelines as per Dublin Ordinances.

The Contractor and Subcontractor shall comply with the Occupational Safety and Health Act of 1970 during the conduct and performance on and in connection with this project.

Location, support, protection and restoration of all existing utilities and appurtenances shall be the responsibility of the Contractor. The cost of this work shall be included in the unit price bid for the various items. It shall be the responsibility of the Contractor, prior to construction, to determine in the field the actual locations and elevations of all existing utilities whether shown on the plan or not. The Contractor shall call the Ohio Utilities Protection Service 1-800-362-2764 (toll free) 2 working days prior to construction.

Roof drains, foundation drains and other clean water connections to the sanitary sewer system are prohibited on this project.

±10 L.F. 4" Perforated underdrain pipe laid out of bottom of catch basins @ 1.0% with upstream ends plugged. #57 aggregate shall extend from a point 4" below the underdrain pipe to the bottom of the pavement base for the length of the underdrain. The perforated pipe shall be protected from heavy traffic after installation until paved.

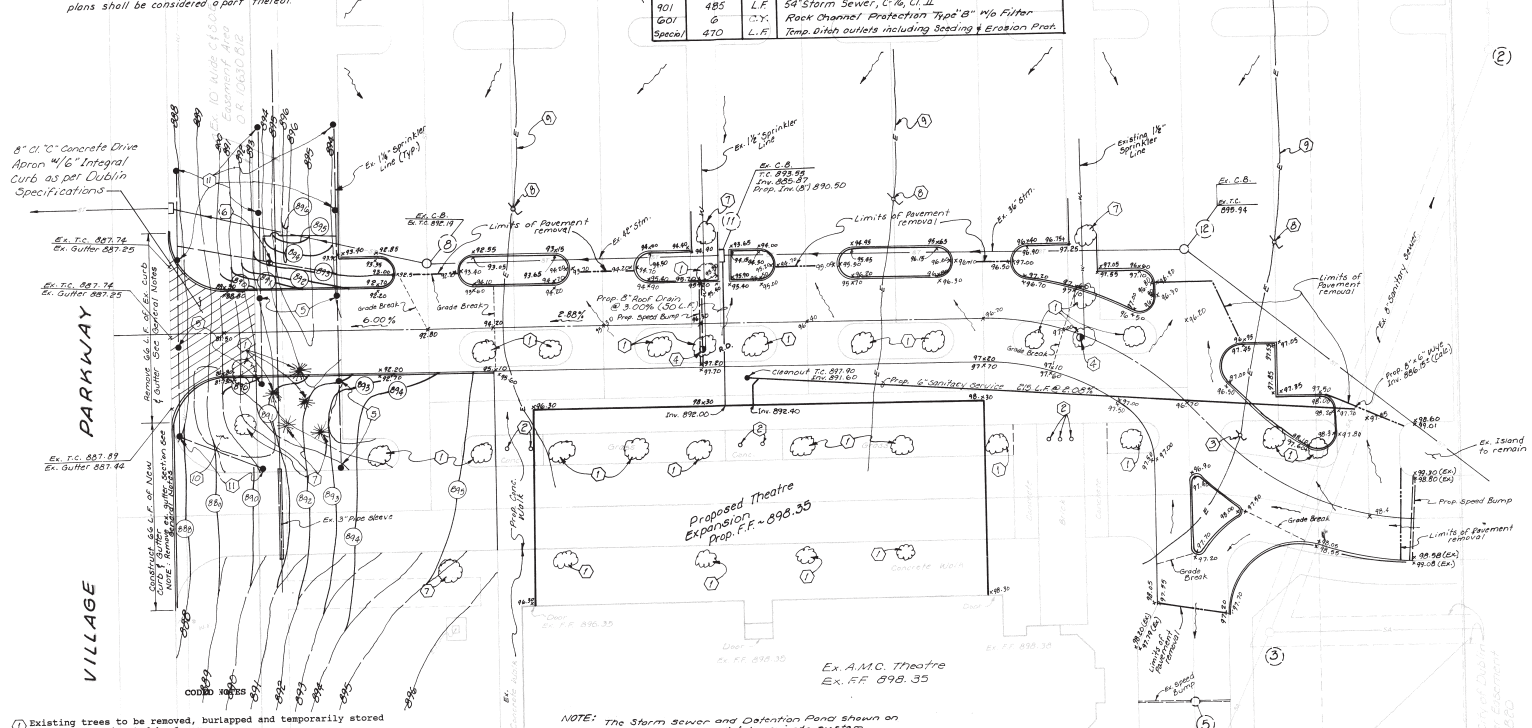
Sanitary sewers shall be subjected to and pass the infiltration or exfiltration test, and be approved for use by the City of Dublin, Ohio before any service connections are tapped into the sewer.

All 12", 10" and 8" sewer pipe shall be ASTM C700-71T, Extra Strength Clay Pipe or ASTM D-3034 PVC Sewer Pipe laid on granular material as per City of Dublin Specifications.

Sanitary Sewer Infiltration: leakage through the joints of the sewer shall not exceed the following allowable limits. 200 gallons per inch of tributary sewer diameter per 24 hours per mile of length or the computed equivalent for shorter lengths and shorter periods of time. All sanitary sewers shall be tested. No more than four sections shall be constructed prior to testing.

A bulkhead shall be placed in the sewer provided for hereon (as shown) and no taps will be permitted until such time as the pipe has been laid, all manholes and cleanouts constructed, the water pumped out and the sewer has been approved for use by the City of Dublin, Ohio. Upon completion of these provisions the bulkhead shall then be removed. Cost of same to be included in the bid price for the various sewer items.

All bulkheads shall be constructed of brick and mortar.



NOTE: The Storm Sewer and Detention Pond shown on these plans are a completely private system, therefore, The City of Dublin will not assume maintenance or repair thereof after completion.

CODED NOTES

1. Existing trees to be removed, burlapped and temporarily stored for reuse as directed by Owner.
2. Existing bollards to be removed and stored for reuse. See Architect's plans for new locations.
3. Existing light standards to be removed and stored for reuse as directed by Owner.
4. Existing quick coupler to be removed and reinstalled as directed on Landscape Architect's plan. Cap existing line within proposed island area.
5. Existing pop-up sprinkler heads to be removed and stored for reuse as directed on Landscape Architect's plans. Cap existing lines as required.
6. Existing irrigation system section valve. Do not disturb until directed by Landscape Architect.
7. Existing tree to remain unless directed otherwise.
8. Existing light standard to remain.
9. Existing underground parking lot lighting cable. Exact location and depth unknown. Location as shown is approximate.
10. Existing landscaping bed to remain unless otherwise directed by Landscape Architect.
11. Existing pop-up sprinkler heads to remain unless otherwise directed by Landscape Architect.

SPECIAL NOTES

The Contractor shall include in his price bid his cost(s) for all items listed in coded Notes. No extra payment will be allowed therefore.

Elevations shown for proposed islands are approximate to nearest 0.1'. Contractor shall install extruded concrete curb on existing blacktop along north side of proposed islands.

Contractor shall feather or meatwald new pavement onto existing pavement as required to maintain proper drainage and smooth transition.

Rev. 2 Sheets 1 & 2 Revised March 1, 1991 Extended Service for Penzone Building.

AS CONSTRUCTED 6-10-91

BAUER, DAVIDSON & MERCHANT, INC.
CONSULTING ENGINEERS

Ronald H. Leonard #42166 4-3-90
Registered Engineer Date

STATE OF OHIO RONALD H. LEONARD 42166 REGISTERED PROFESSIONAL ENGINEER

CITY OF DUBLIN, OHIO

Paul E. Willis 10/26/90
City Engineer, City of Dublin Date

11/7/90
City Administrator, City of Dublin Date

11/8/90
Mayor, City of Dublin Date

Approval on the part of the City of Columbus is given pursuant to the provisions of the sewer service agreement with the City of Dublin, on October 4, 1971

CITY OF COLUMBUS, OHIO

10-31-90
(Administrator, Division of Sewerage and Drainage Date

12/90
Director of Public Utilities and Aviation Date

NOTE RE: EASEMENT

Sewers constructed under this plan, shall not be approved by the City of Dublin, until such time as the easements for said sewers have been recorded. And copies given to the City Engineer.

GRADING, ROOF DRAIN & SANITARY SERVICE
FOR
AMC THEATRE EXPANSION

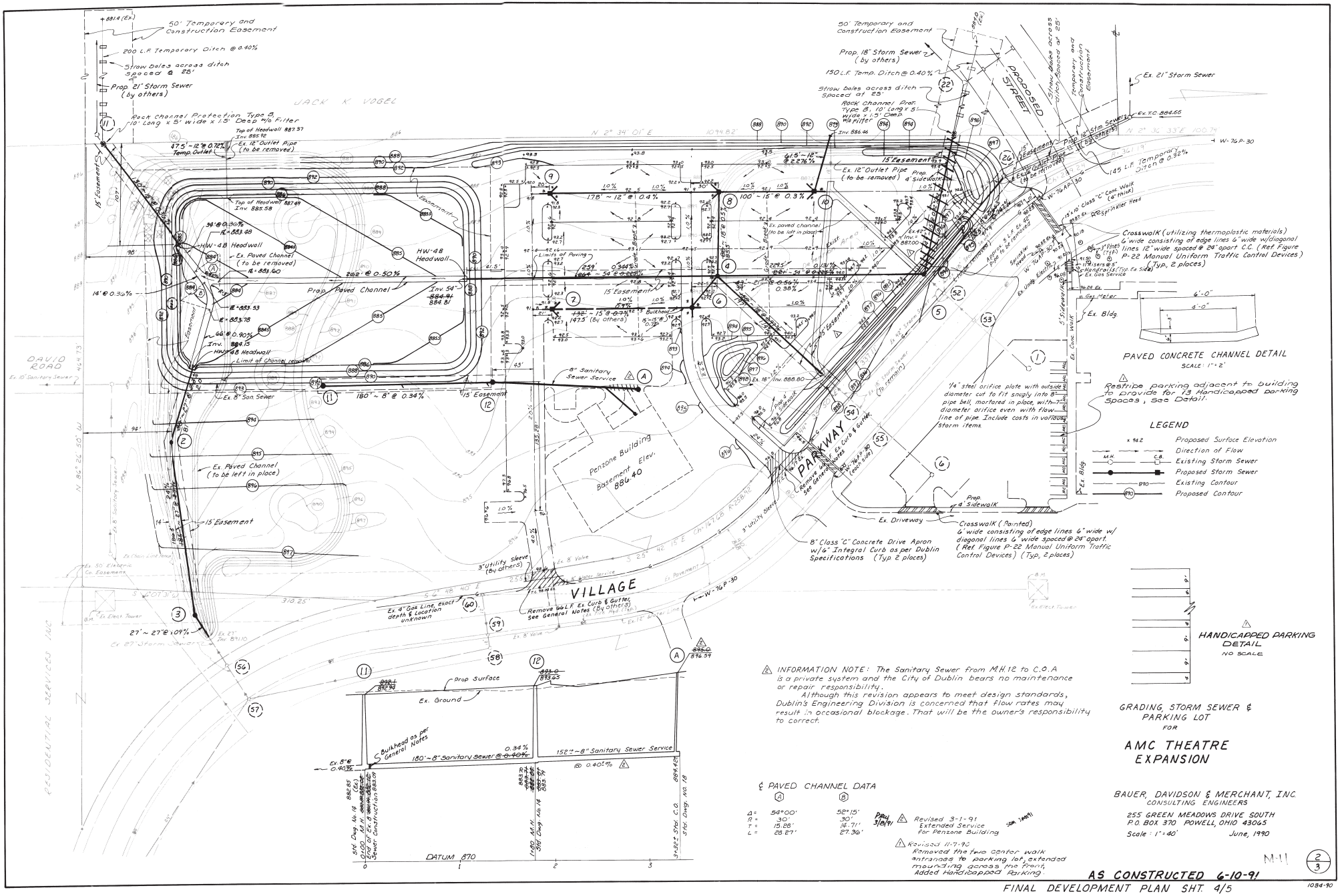
BAUER, DAVIDSON & MERCHANT, INC.
CONSULTING ENGINEERS
255 Green Meadows Drive South P.O. Box 370
Powell, Ohio 43065

Scale: 1" = 20' April, 1990

M-11 1/3

FINAL DEVELOPMENT PLAN SHT. 3/5

795-90



PAVED CONCRETE CHANNEL DETAIL
SCALE: 1" = 2'

Restripe parking adjacent to building to provide for 13 Handicapped parking spaces, see Detail.

LEGEND

x 94.2	Proposed Surface Elevation
	Direction of Flow
M.H. C.B.	Existing Storm Sewer
	Proposed Storm Sewer
890	Existing Contour
890	Proposed Contour

HANDICAPPED PARKING DETAIL
NO SCALE

INFORMATION NOTE: The Sanitary Sewer from M.H. 12 to C.O.A is a private system and the City of Dublin bears no maintenance or repair responsibility.
Although this revision appears to meet design standards, Dublin's Engineering Division is concerned that flow rates may result in occasional blockage. That will be the owner's responsibility to correct.

℄ PAVED CHANNEL DATA

	A	B
Δ =	54°00'	52°15'
R =	30'	30'
T =	15.28'	14.71'
L =	28.27'	27.36'

PRJ 3/8/91 Revised 3-1-91 Extended Service for Penzone Building SDM 3/8/91

Revised 11-7-90 Removed the two center walk entrances to parking lot, extended mounding across the front, Added Handicapped Parking.

GRADING, STORM SEWER & PARKING LOT
FOR
AMC THEATRE EXPANSION

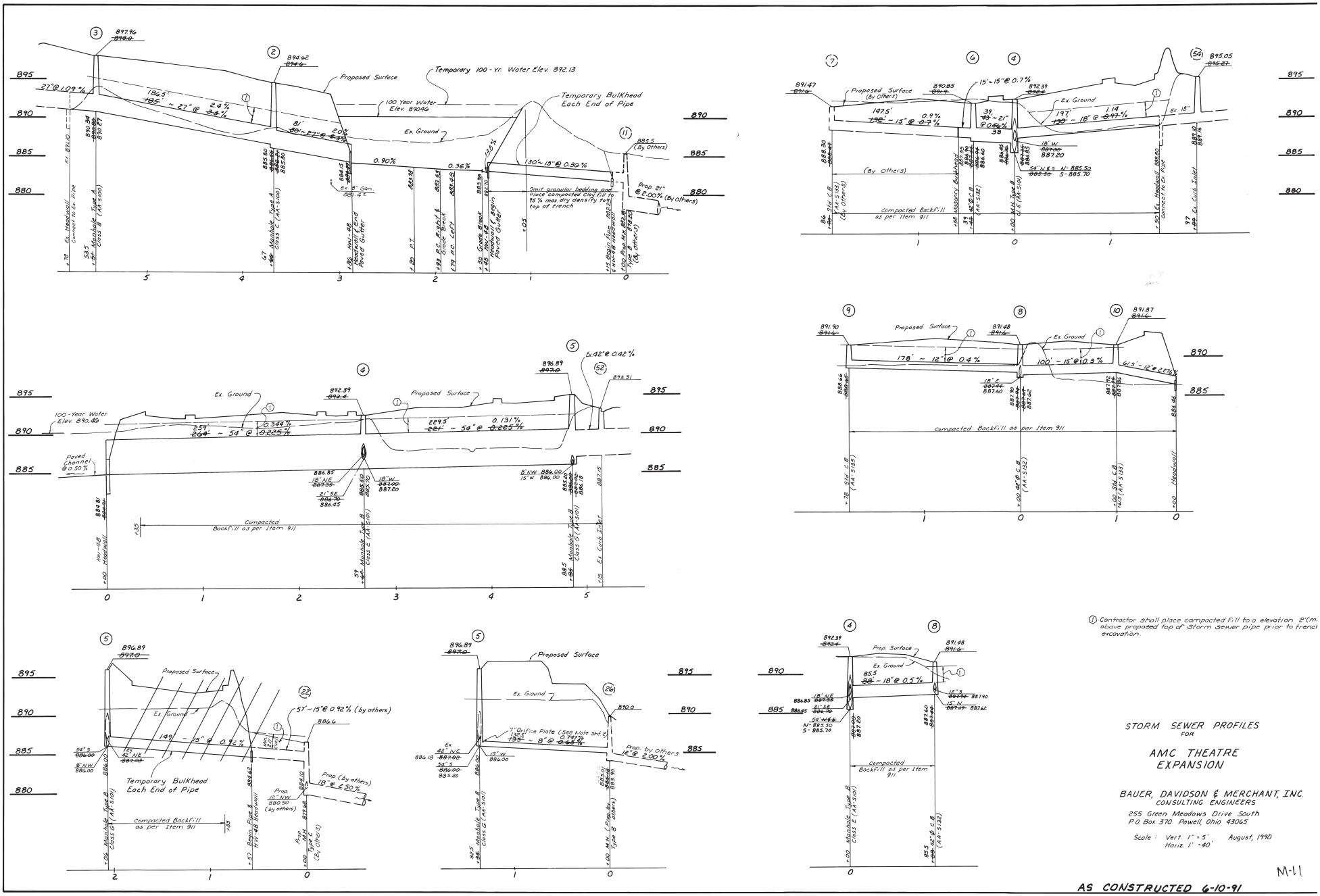
BAUER, DAVIDSON & MERCHANT, INC.
CONSULTING ENGINEERS
255 GREEN MEADOWS DRIVE SOUTH
P.O. BOX 370 POWELL, OHIO 43065
Scale: 1" = 40' June, 1990

M-11 2/3

AS CONSTRUCTED 6-10-91

FINAL DEVELOPMENT PLAN SHT. 4/5

1084-90



① Contractor shall place compacted fill to a elevation 2'(m. above proposed top of Storm sewer pipe prior to trench excavation.

STORM SEWER PROFILES
FOR

AMC THEATRE
EXPANSION

BAUER, DAVIDSON & MERCHANT, INC.
CONSULTING ENGINEERS
255 Green Meadows Drive South
P.O. Box 370 Powell, Ohio 43065

Scale: Vert. 1" = 5' August, 1990
Horiz. 1" = 40'

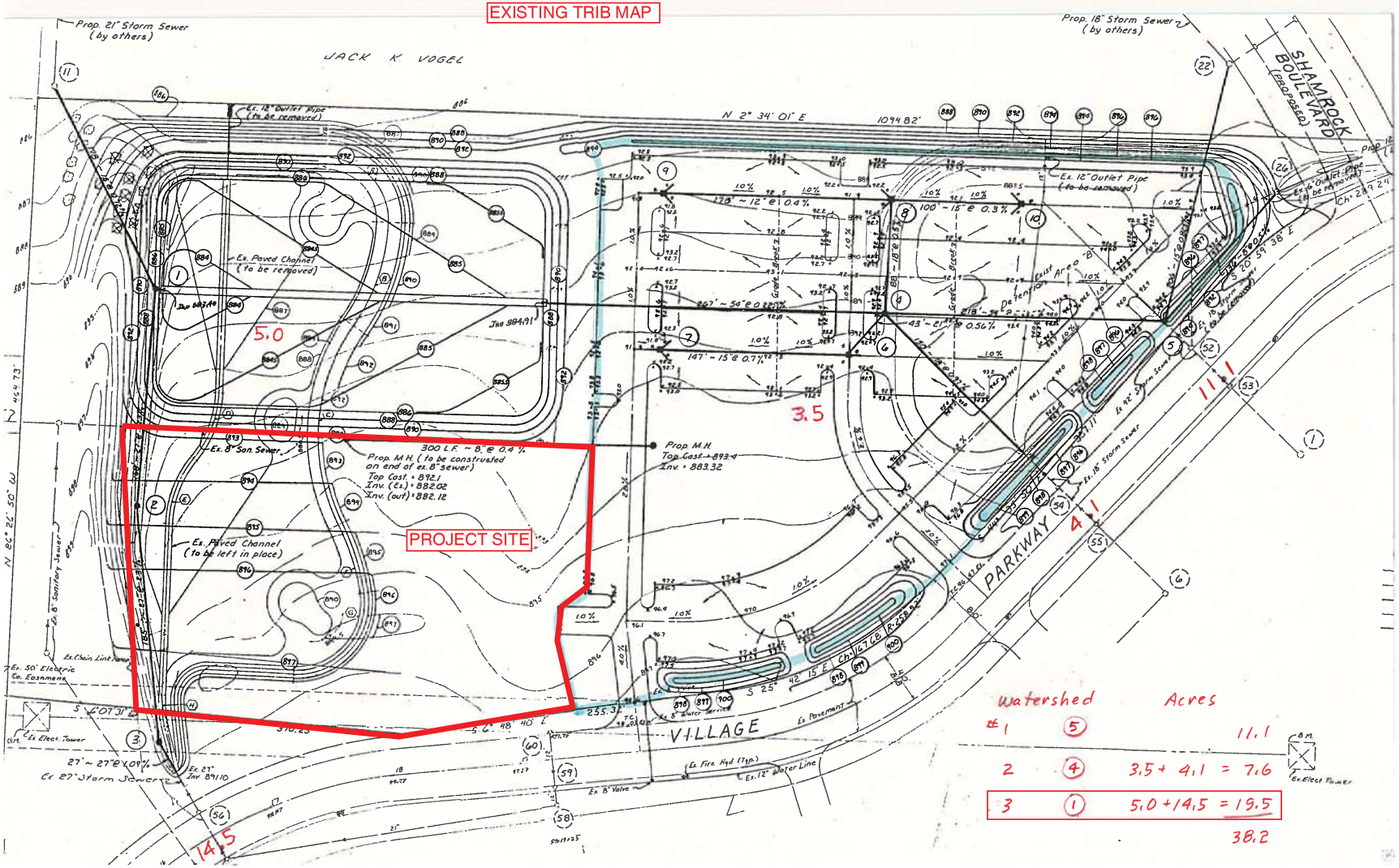
M-11

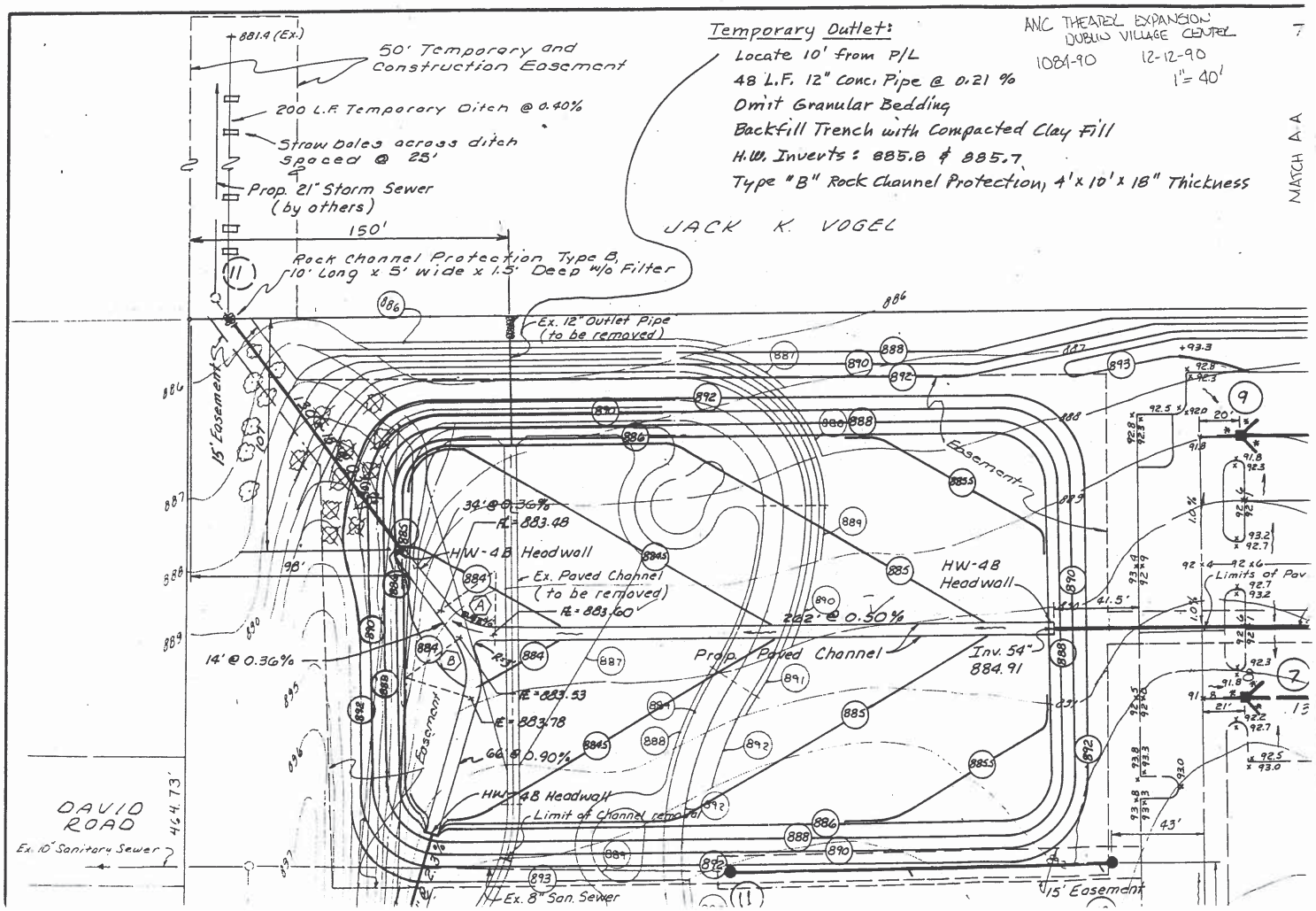
AS CONSTRUCTED 6-10-91

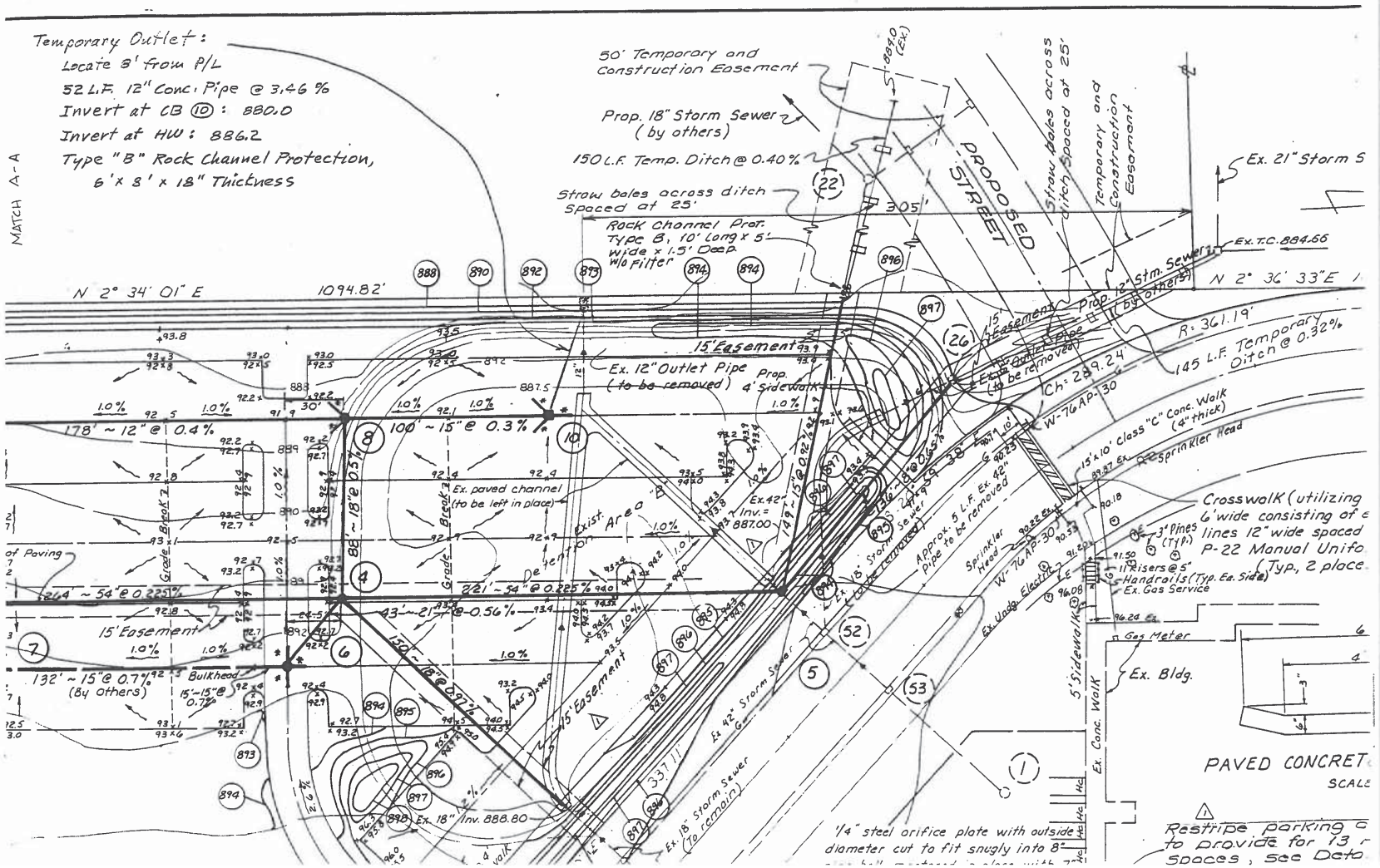
FINAL DEVELOMENT PLAN SHT. 5/5

94-001-COM
AMC Theater
Old Index No.: M005.M011.M019
Page 15 of 17

EXISTING TRIB MAP




Temporary Outlet:
Locate 10' from P/L
48 L.F. 12" Conc. Pipe @ 0.21 %
Omit Granular Bedding
Backfill Trench with Compacted Clay Fill
H.W. Inverts: 885.8 & 885.7
Type "B" Rock Channel Protection, 4' x 10' x 18" Thickness
ANC THEATRE EXPANSION
DUBLIN VILLAGE CENTRE
1084-90
12-12-90
1" = 40'
MATCH A-A
JACK K. VOGEL
881.4 (Ex.)
50' Temporary and Construction Easement
200 L.F. Temporary Ditch @ 0.40%
Straw bales across ditch spaced @ 25'
Prop. 21" Storm Sewer (by others)
150'
Rock Channel Protection Type B, 10' Long x 5' wide x 1.5' Deep w/o Filter
Ex. 12" Outlet Pipe (to be removed)
15' Easement
34' @ 0.36%
FL = 883.48
HW-48 Headwall
Ex. Paved Channel (to be removed)
FL = 883.60'
262' @ 0.50%
HW-48 Headwall
Prop. Paved Channel
Inv. 54" 884.91
14' @ 0.36%
FL = 883.53
E = 883.78
66' @ 0.90%
HW-48 Headwall
Limit of Channel removal
Limits of Pav
DAVID ROAD
464.73'
Ex. 10" Sanitary Sewer
Ex. 8" San. Sewer
15' Easement



Temporary Outlet:
Locate 8' from P/L
52 L.F. 12" Conc. Pipe @ 3.46 %
Invert at CB (10): 880.0
Invert at HW: 886.2
Type "B" Rock Channel Protection,
6' x 8' x 18" Thickness
MATCH A-A
50' Temporary and Construction Easement
Prop. 18" Storm Sewer (by others)
150 L.F. Temp. Ditch @ 0.40%
Straw bales across ditch Spaced at 25'
Rock Channel Prot. Type B, 10' Long x 5' Wide x 1.5' Deep w/o Filter
PROPOSED STREET
Straw bales across ditch Spaced at 25'
Temporary and Construction Easement
Ex. 21" Storm S
Ex. T.C. 884.66
N 2° 34' 01" E
1094.82'
N 2° 36' 33" E
15' Easement
Ex. 12" Outlet Pipe (to be removed)
Prop. 4' Sidewalk
Prop. 12" Stm. Sewer (by others)
R: 361.19'
145 L.F. Temporary Ditch @ 0.32%
Ch: 289.24'
W-76 AP-30
15' x 10' Class "C" Conc. Walk (4" thick)
Sprinkler Head
Crosswalk (utilizing 6' wide consisting of e lines 12" wide spaced P-22 Manual Unifo (Typ., 2 place
3" Pines (Typ.)
11 Risers @ 5"
Handrails (Typ. Ea. Side)
Ex. Gas Service
Gas Meter
Ex. Bldg.
5' Sidewalk
Ex. Conc. Walk
Ex. Undg. Electric
Approx. 5 L.F. Ex. 42" Pipe to be removed
Ex. 18" Storm Sewer (to be removed)
Ex. 42" Inv. = 887.00
Ex. 42" Storm Sewer
Ex. 18" Storm Sewer (To remain)
Ex. 18" Inv. 888.80
178' ~ 12" @ 0.4%
100' ~ 15" @ 0.3%
88' ~ 18" @ 0.5%
Ex. paved channel (to be left in place)
Exist. Area "B"
Detention
Grade Break
264' ~ 54" @ 0.225%
221' ~ 54" @ 0.225%
43' ~ 21" @ 0.56%
150' ~ 18" @ 0.97%
132' ~ 15" @ 0.7% (By others)
Bulkhead
15' Easement
1/4" steel orifice plate with outside diameter cut to fit snugly into 8"
PAVED CONCRET
SCALE
Restripe parking a to provide for 13 r Spaces, see Deta

Dublin Village Center 1804-90 12-17-90
Combined Basin B&C, after development
Temporary Outlets

1. Watersheds

		Acres	CN	Slope	HL	IA	Length
B	#1	11.1	95	2.5	97	88	1500
	#2	7.6	95	2.5	97	88	1600
C	#3	19.5	95	2.5	97	88	1700

2. Allowable release rate (from 10-29-86 design)

direction	N. West	West	S. West
cfs	1.86	8.97	11.34

3. Basin volume

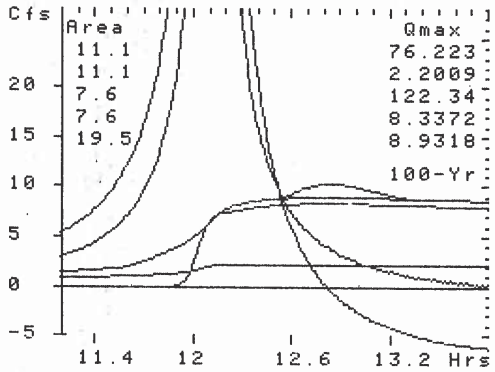
Elev.	885.8	886	888	890	892
Area	52020	53690	59200	65250	71630
Vol.	0	10612	124270	248750	385630

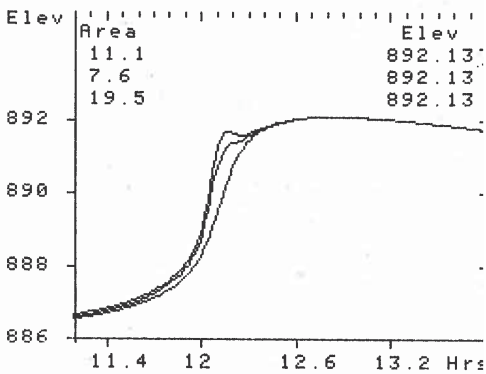
(Basin B&C @ 892: 191440 + 248240 = 439680

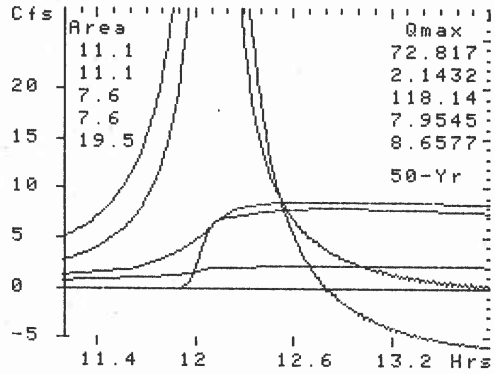
4. Results of routing

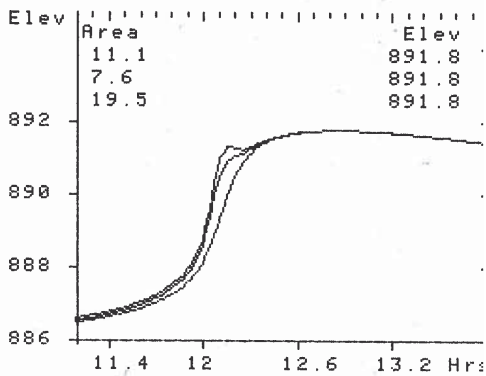
			100-Yr	25-Yr	1-Yr
cfs runoff	#1		80.9	69.4	36.1
	#2		54.4	46.7	24.1
	#3		137.2	117.6	60.5
outflow	NW		2.20	2.03	1.50
	W		8.34	7.17	1.38
	SW	pipe	8.93	8.11	5.07
		overflow	1.35		
basin #3	elevation		892.13	891.17	888.45
	area		72035	68988	60570
	volume		394719	327458	150996

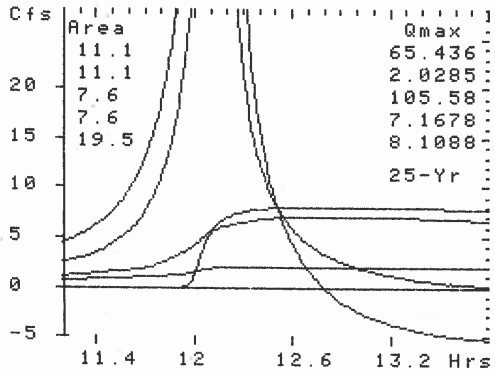
Temporary Outlets

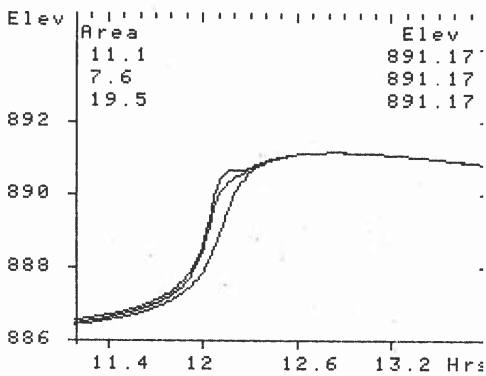


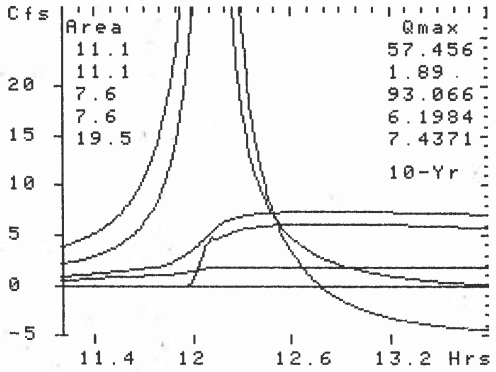


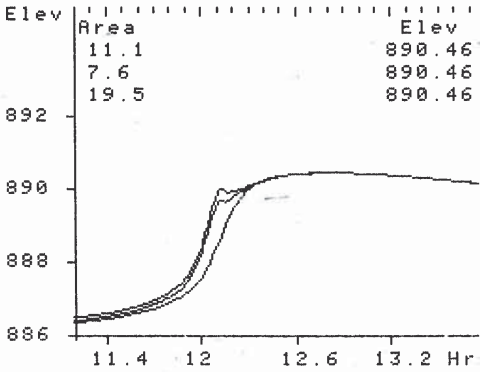


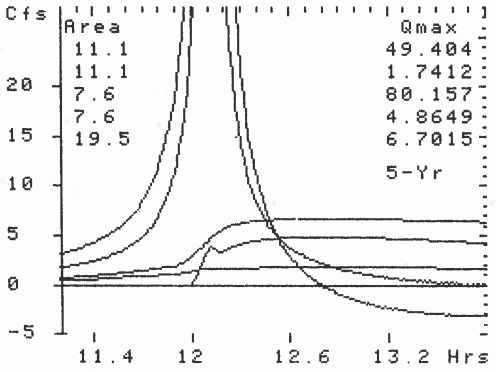







Cfs
Area
11.1
11.1
7.6
7.6
19.5
Qmax
57.456
1.89
93.066
6.1984
7.4371
10-Yr
20
15
10
5
0
-5
11.4
12
12.6
13.2 Hrs


Elev
Area
11.1
7.6
19.5
Elev
890.46
890.46
890.46
892
890
888
886
11.4
12
12.6
13.2 Hr


Cfs
Area
11.1
11.1
7.6
7.6
19.5
Qmax
49.404
1.7412
80.157
4.8649
6.7015
5-Yr
20
15
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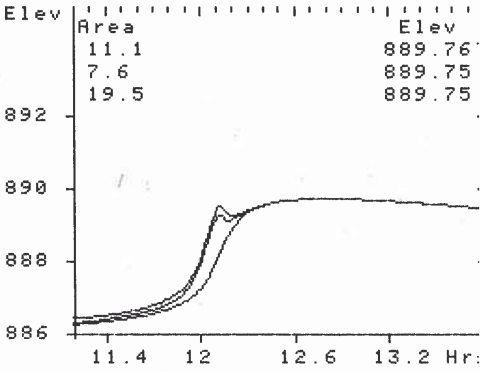
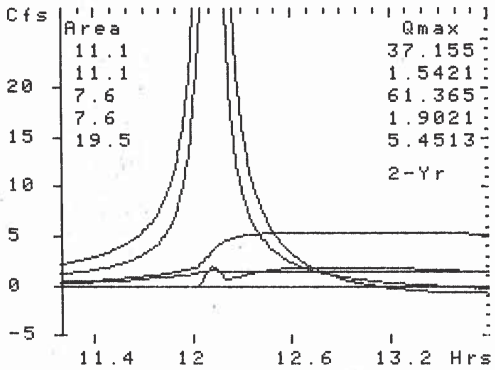
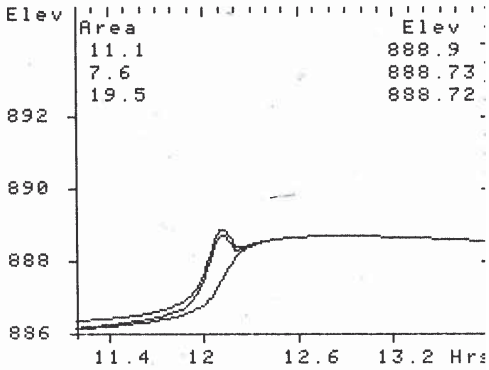
5
0
-5
11.4
12
12.6
13.2 Hrs


Elev
Area
11.1
7.6
19.5
Elev
889.76
889.75
889.75
892
890
888
886
11.4
12
12.6
13.2 Hr


Cfs
Area
11.1
11.1
7.6
7.6
19.5
Qmax
37.155
1.5421
61.365
1.9021
5.4513
2-Yr
20
15
10
5
0
-5
11.4
12
12.6
13.2 Hrs


Elev
Area
11.1
7.6
19.5
Elev
888.9
888.73
888.72
892
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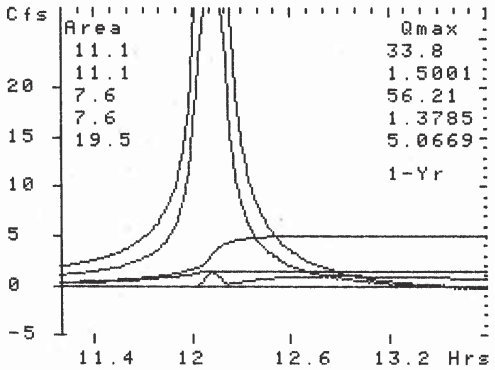
886
11.4
12
12.6
13.2 Hrs


Cfs
Area
11.1
11.1
7.6
7.6
19.5
Qmax
33.8
1.5001
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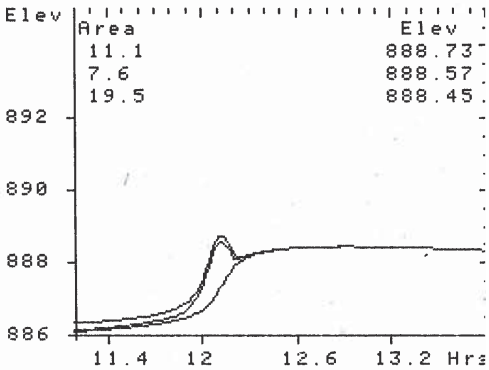
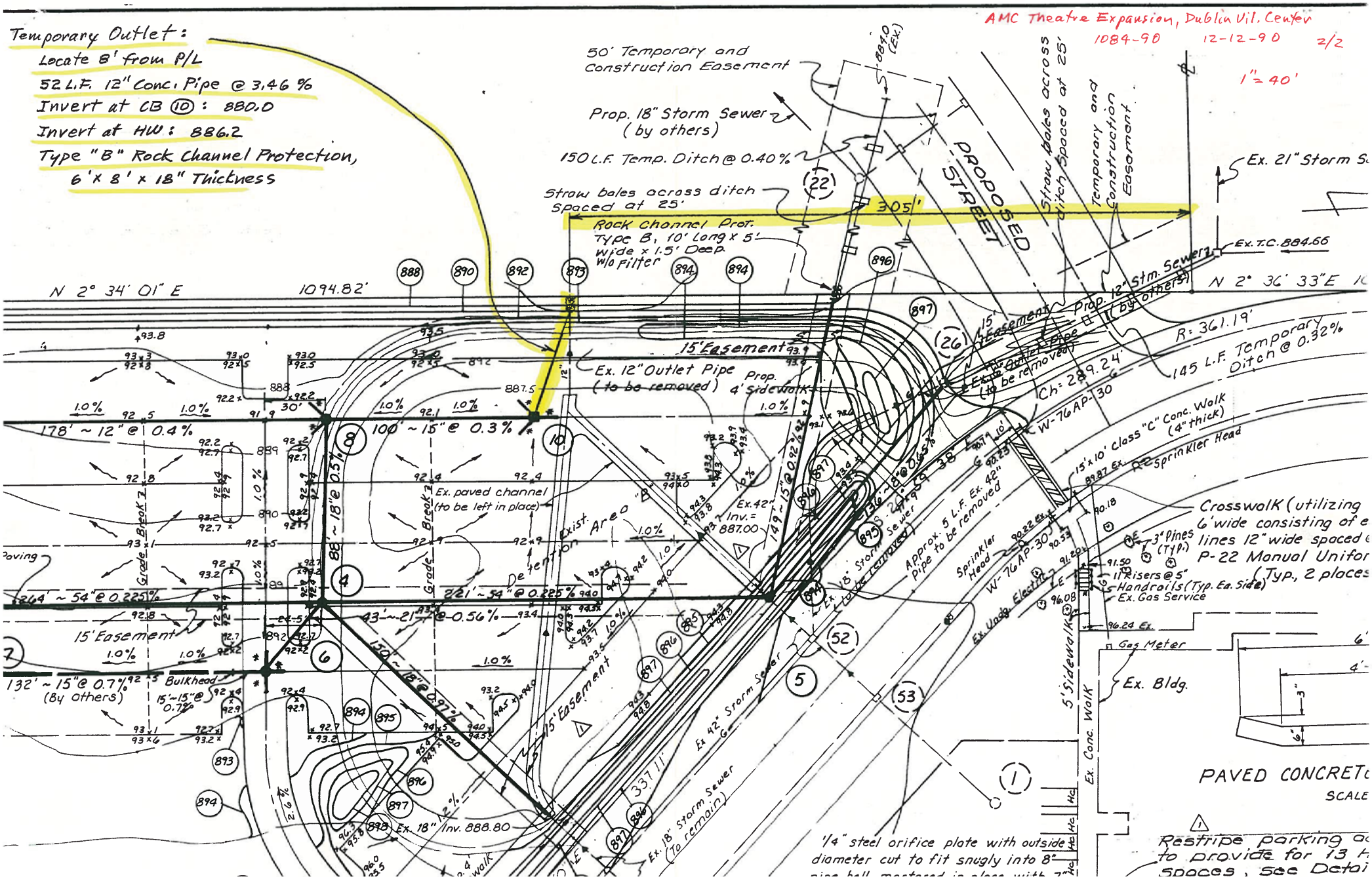
5.0669
1-Yr
20
15
10
5
0
-5
11.4
12
12.6
13.2 Hrs


Elev
Area
11.1
7.6
19.5
Elev
888.73
888.57
888.45
892
890
888
886
11.4
12
12.6
13.2 Hrs

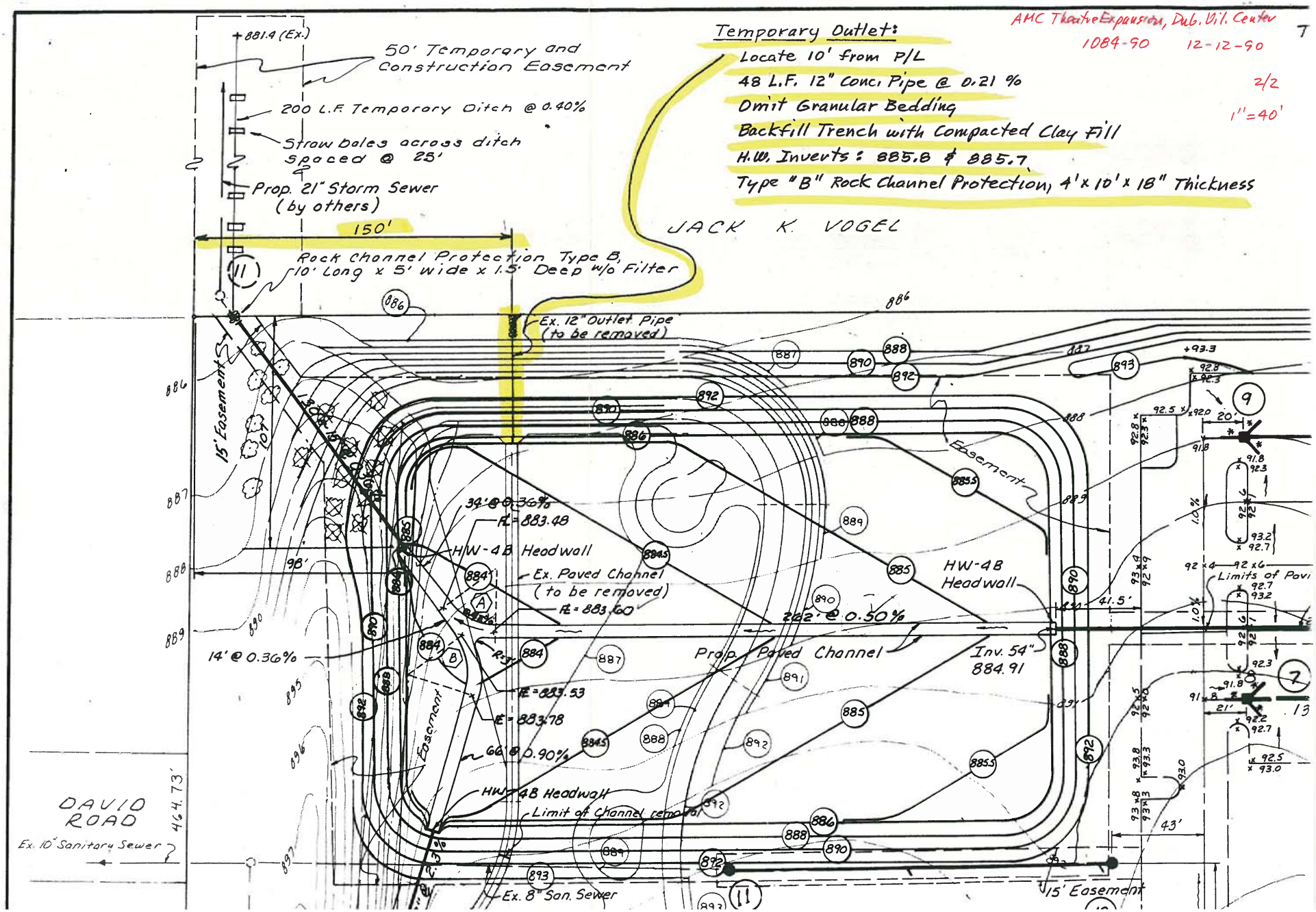
AMC Theatre Expansion, Dublin Vil. Center
1084-90 12-12-90 2/2

1" = 40'

Temporary Outlet:
Locate 8' from P/L
52 L.F. 12" Conc. Pipe @ 3.46 %
Invert at CB (10): 880.0
Invert at HW: 886.2
Type "B" Rock Channel Protection,
6' x 8' x 18" Thickness



AMC Theatre Expansion, Dub. Vil. Center
1084-90 12-12-90
7
2/2
1"=40'

Temporary Outlet:

- Locate 10' from P/L
- 48 L.F. 12" Conc. Pipe @ 0.21 %
- Omit Granular Bedding
- Backfill Trench with Compacted Clay Fill
- H.W. Inverts: 885.8 & 885.7
- Type "B" Rock Channel Protection, 4' x 10' x 18" Thickness