

GROUNDWATER RECHARGE

PRE-DEVELOPED RECHARGE VOLUME:

The existing 15th Street Basin has an outlet discharge bottom area of approximately 99,092 square feet (2.27 acres) that discharges to existing storm drain to the west and has four separate dead storage ponding areas in the easterly portion of the basin (See Exhibit A & B). The detention basin gently slopes from east to west where it then drains into existing storm drain pipes that route flows into a series of San Bernardino County Flood Control District (SBCFCD) regional detention basins north and south of 8th Street in the City of Upland, CA. The separate storage ponds A, B, C, and D are located just east of the discharge area of the basin (See Exhibits A & B) and are graded resulting in dead storage ponds. The area and volume of each basin can be seen in Table A-1c below. The total existing recharge volume is 280,870.74 cubic feet (6.45 acre-feet).

SUMMARY OF EXISTING GROUNDWATER RECHARGE VOLUMES
(Table A-1c)

POND	AREA (sq. ft.)	RECHARGE VOLUME (cu. ft.)	RECHARGE VOLUME (ac.- ft.)	DEPTH (ft.)
A	16331.50	34908.03	0.80	3.0
B	76932.04	126516.06	2.90	2.0
C	19012.55	25570.35	0.59	2.0
D	79252.73	93876.30	2.16	2.0
TOTAL	191528.82	280870.74	6.45	

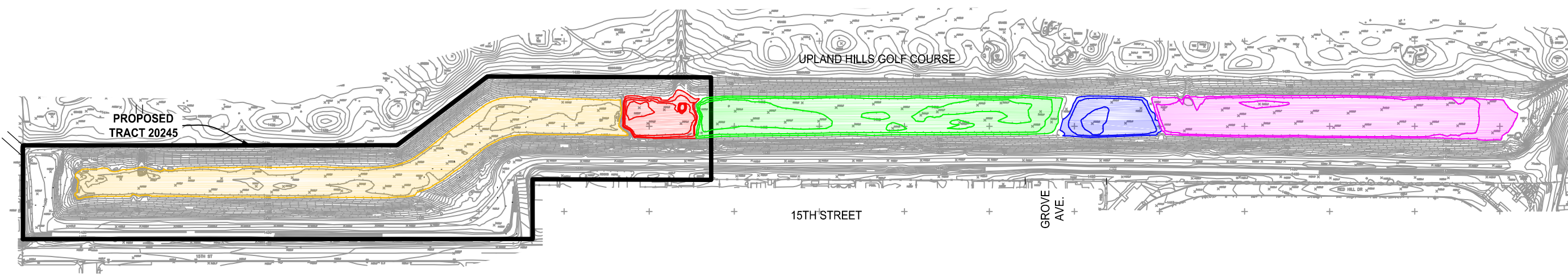
POST-DEVELOPED RECHARGE VOLUME:

The proposed development will have four sub-areas used for storm water recharge volume (See Exhibits C & D). Pond D will remain in its current condition with a volume of 93,876.30 cubic feet (2.16 acre-feet) of dead storage for groundwater recharge. The bottom of Pond C will be modified, graded, and lowered 7 feet with a new recharge volume of 88,025.40 cubic feet (2.02 acre-feet). The bottom of Pond B will be lowered 7 feet with a new recharge volume of 211,732.65 cubic feet (4.86 acre-feet). The development will also have an onsite water quality bmp system which will have a total recharge volume of 28,809 cubic feet (0.66 acre-feet). The following table (Table A-1d) is a summary of the area and volume of storm water recharge for the post-developed conditions. The total recharge volume will be 422,443.35 cubic feet (9.70 acre-feet).

SUMMARY OF POST-DEVELOPED GROUNDWATER RECHARGE VOLUMES

(Table A-1d)

POND	AREA (sq. ft.)	RECHARGE VOLUME (cu. ft.)	RECHARGE VOLUME (ac.- ft.)	DEPTH (ft.)
MODIFIED B	45711.12	211732.65	4.86	7.0
MODIFIED C	18332.64	88025.40	2.02	8.0
D	79252.73	93876.30	2.16	2.0
WQMP ON-SITE		28809.00	0.66	
TOTAL	143296.48	422443.35	9.70	



LEGEND



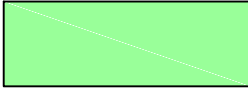


DISCHARGE AREA		99,092 SF (2.27 AC)
POND A		0.80 AC.-FT.
POND B		2.90 AC.-FT.
POND C		0.59 AC.-FT.
POND D		2.16 AC.-FT.

EXHIBIT A

EXISTING RECHARGE BASINS

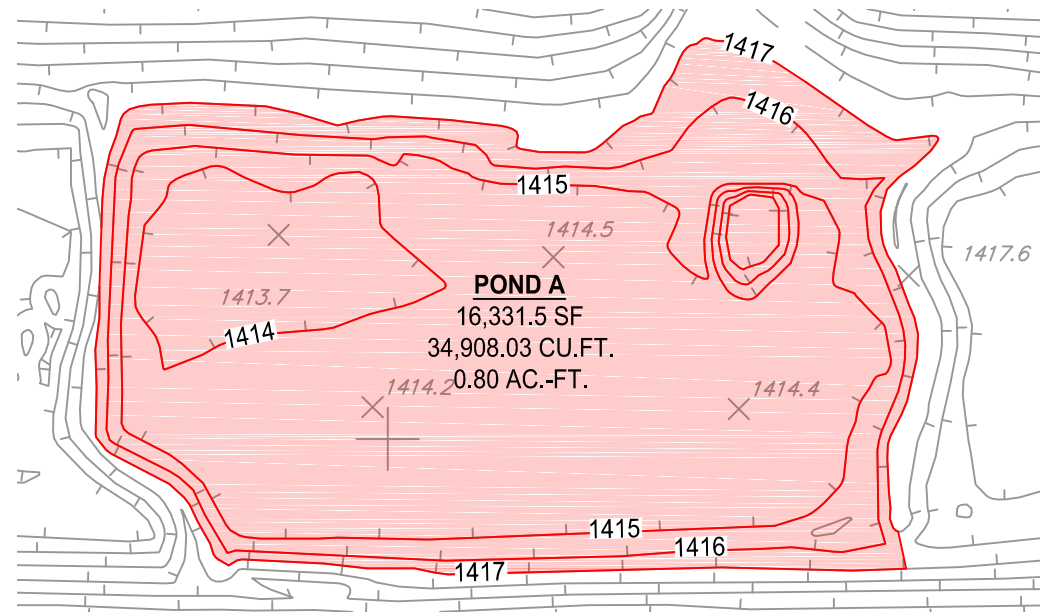
TRACT 20245



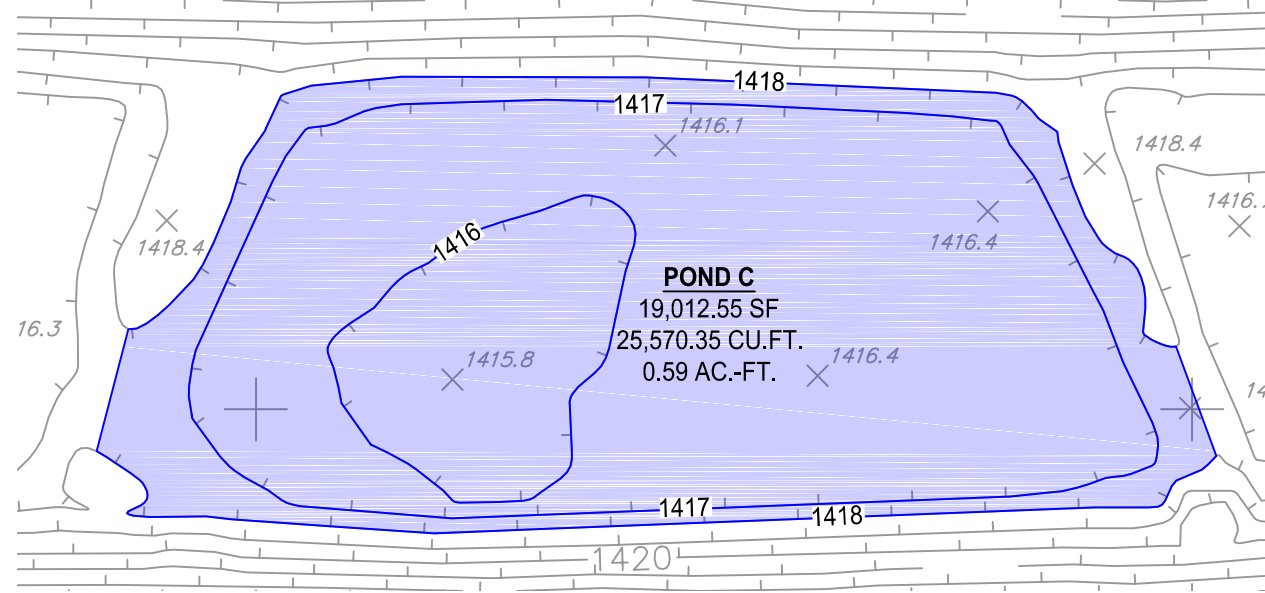
9302 PITTSBURGH AVE, SUITE 230
 RANCHO CUCAMONGA, CA. 91730
 PHONE: 909.481.6322
 FAX: 909.481.6320

JOB NUMBER
652-2898

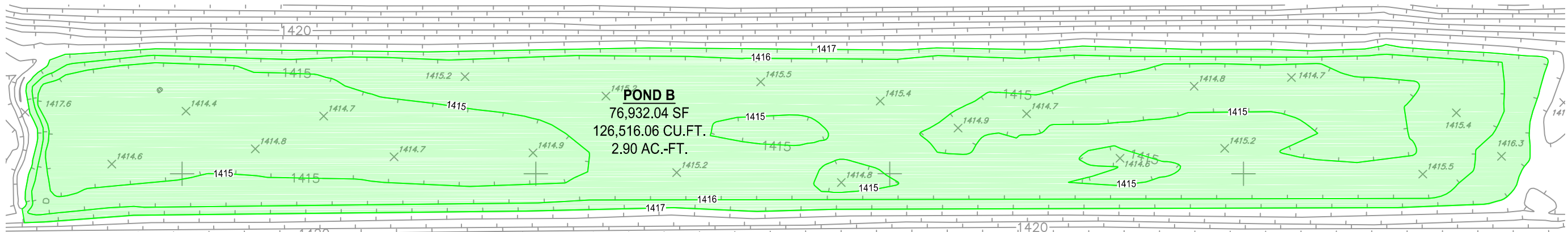
SHEET
1 OF 2



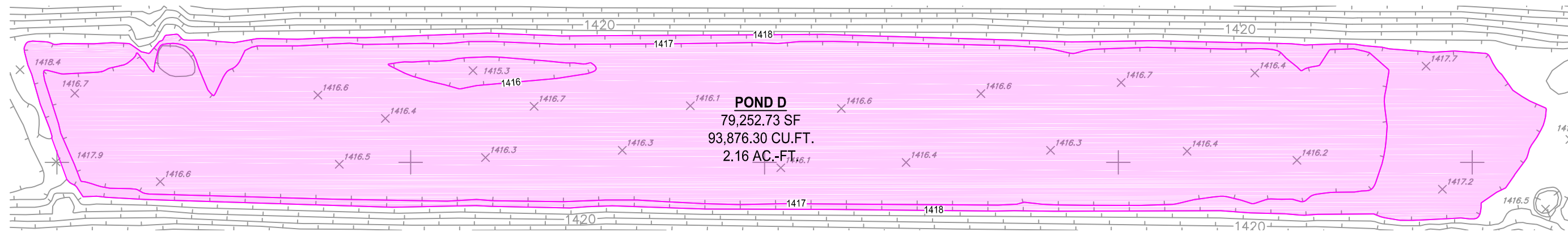
#B# SCALE: 1" = 40'



#B# SCALE: 1" = 40'



#B# SCALE: 1" = 60'



#B# SCALE: 1" = 60'

EXHIBIT B

EXISTING RECHARGE BASINS
 TRACT 20245

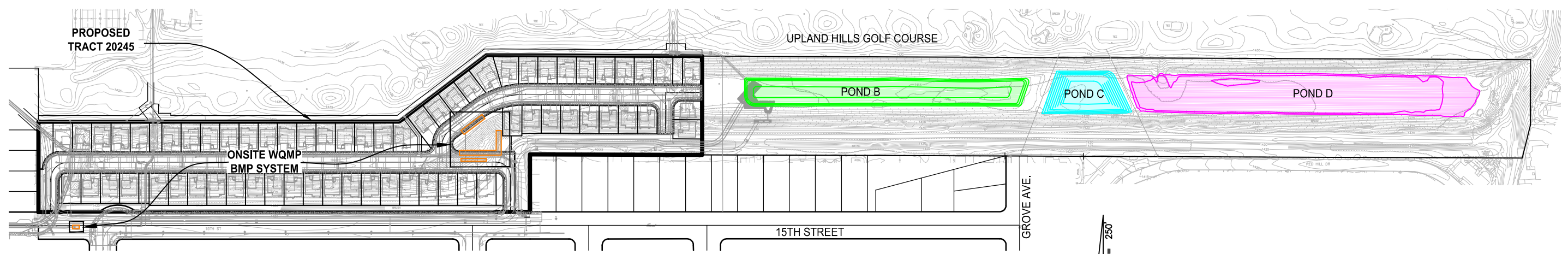


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 RANCHO CUCAMONGA, CA 91730
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SHEET
 2 OF 2

J.N. 652-2898; RECHARGE EXHIBIT



SCALE: 1" = 250'

LEGEND





MODIFIED POND B		4.86 AC.-FT.
MODIFIED POND C		2.02 AC.FT.
POND D		2.16 AC.-FT.
ONSITE WQMP BMP SYSTEM		0.66 AC.-FT.

EXHIBIT C

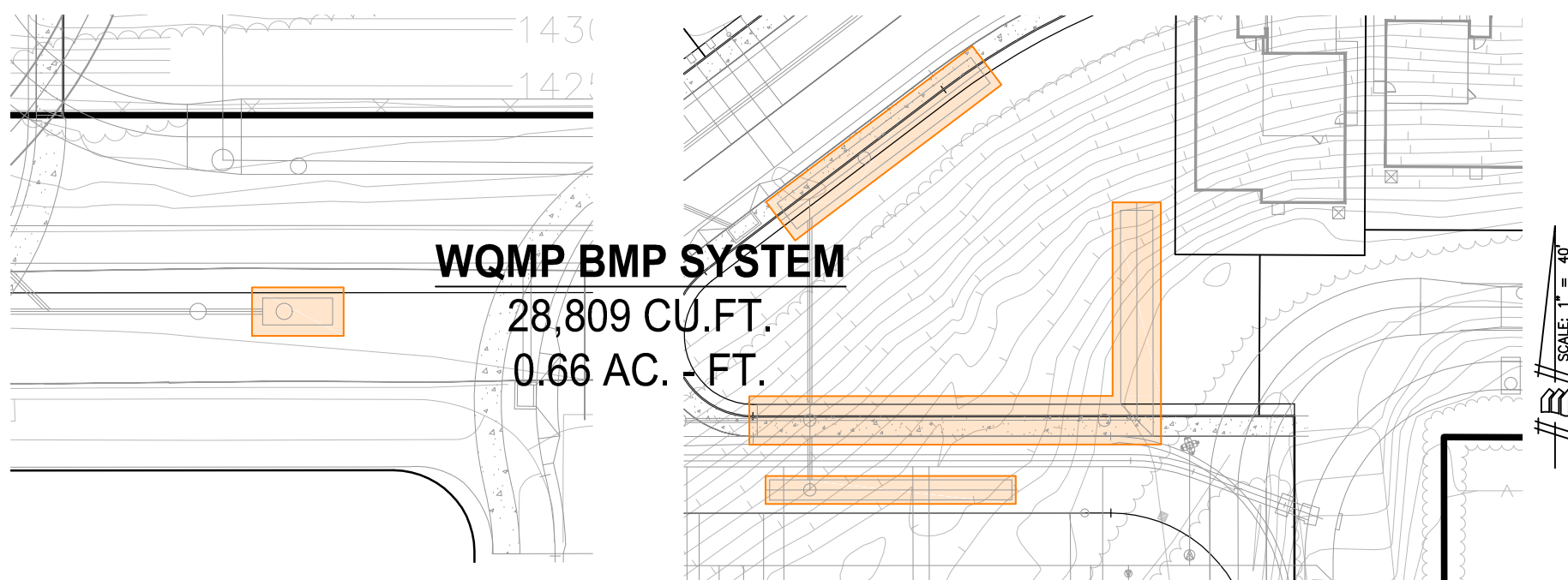
PROPOSED RECHARGE CONDITIONS
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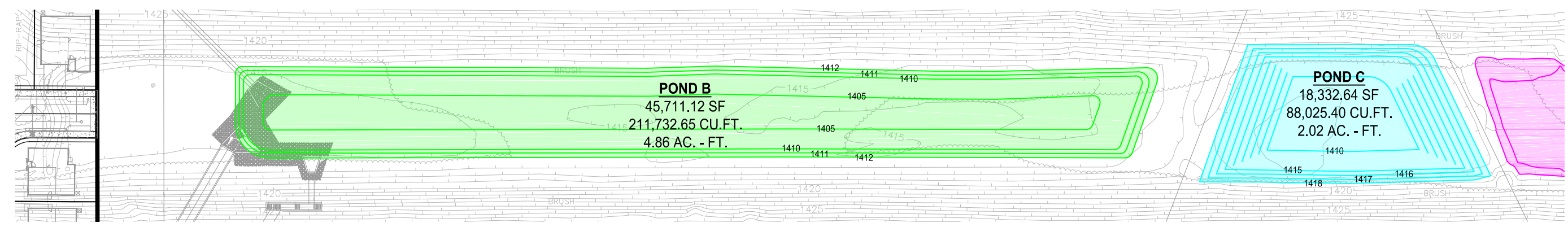
J.N. 652-2898; RECHARGE EXHIBIT



WQMP BMP SYSTEM

28,809 CU.FT.
0.66 AC. - FT.

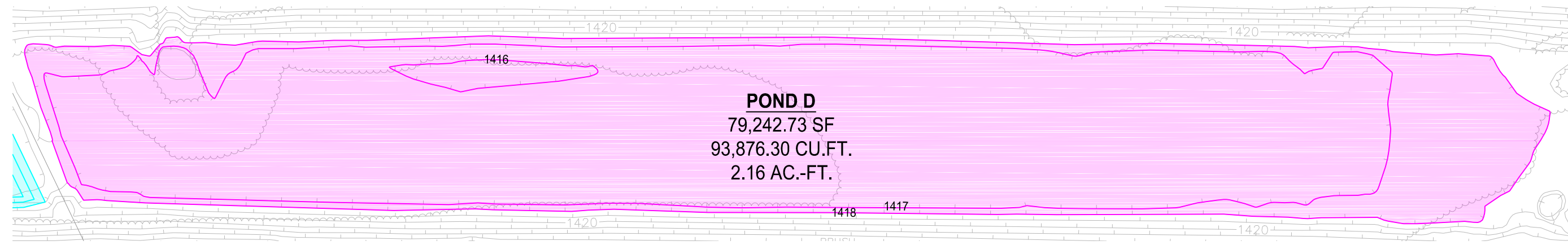
SCALE: 1" = 40'



POND B
45,711.12 SF
211,732.65 CU.FT.
4.86 AC. - FT.

POND C
18,332.64 SF
88,025.40 CU.FT.
2.02 AC. - FT.

SCALE: 1" = 80'



POND D
79,242.73 SF
93,876.30 CU.FT.
2.16 AC.-FT.

SCALE: 1" = 60'

EXHIBIT D

PROPOSED RECHARGE CONDITIONS

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