

Appendix 2-1

Legal structure for Urban Development and
Related Issues in Thailand and Japan

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1. Legal Structure for Urban Development and Related Issues in Thailand and Japan

	Laws	Plan, Project	Similar Plan in Thailand<*1>	Organization that Formulated the Plan, Legal Position of the Plan <*1>
National Plan			The Twelfth National Economic and Social Development Plan (2017- 2021)/ แผนพัฒนาเศรษฐกิจและสังคมแห่งชาติฉบับที่12	<ul style="list-style-type: none"> Organizations that formulated the plan: Office of the National Economic and Social Development Board (NESDB), Office of the Prime Minister The most important plan that determines the policies on nation's economic and social development The five-year national plan has been approved by the cabinet and promulgated by a government decree. The spatial plan is not included.
	Basic Act for Land	Land use plan	National Spatial Plan 2057/ ผังประเทศ2600 <*2>	<ul style="list-style-type: none"> Organizations that formulated the plan: Department of Public Works and Town & Country Planning (DPT), Ministry of Interior The creation of this plan began in response to the cabinet order to DPT dated July 9, 2002 (which encouraged the formulation of urban plans all over the country). The National Spatial Plan 2057 is currently being reviewed.
	National Land Use Planning Act	National land use plan, basic land use plan		
	National Spatial Planning Act	Regional plan	National Spatial Plan 2057 (Regional Spatial Plan 2057/ ผังภาค2600). The plan shows policies on development in the Northern Region, Northeastern Region, Central Region, Southern Region, Eastern Region, Bangkok, and its vicinity.	<ul style="list-style-type: none"> Organization that formulated the plan: Department of Public Works and Town & Country Planning (DPT) The creation of this plan began in response to the cabinet order to DPT dated July 9, 2002 (which encouraged the formulation of urban plans all over the country). The contents of the plan are currently being reviewed.
	Multi-Polar Patterns National Land Formation Promotion Act	Basic plan for development hub sites, basic plan for business hub cities		
Regional Plan	Metropolitan Area Readjustment Act, Kinki Area Adjustment Act, Chubu Area Development and Improvement Act	Metropolitan area readjustment plan, Kinki area adjustment plan, and Chubu area development and improvement plan		
(Block level/ prefectural level)	National Land Use Planning Act	Prefectural plan	Provincial Comprehensive Plan/ ผังเมืองรวมจังหวัด	<ul style="list-style-type: none"> Created by DPT and provincial governments (องค์การบริหารส่วนจังหวัด) in accordance with the Town Planning Act 1975/ พระราชบัญญัติการผังเมือง2518 (revised by the 1992 Act). The plan has now been formulated in all provinces. This plan restricts land use in all areas of each province but does not classify land use into many types. It clearly segments lands into urban areas, rural areas, forest conservation areas, and others. Accordingly, they are close in nature to the urbanization promotion areas and urbanization control areas that are stipulated in the City Planning Act of Japan. Provinces with an urban comprehensive plan covering the overall areas in each, such as Bangkok, Nonthaburi, and Sampakarn, have not formulated a provincial-level comprehensive plan.
	Act on Measures for Promoting Mountain Villages, Remote Islands Development Act			
	Others			

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Urban Plan	National Land Use Planning Act	Municipal plan	Urban Comprehensive Plan/ ผังเมืองรวม	<ul style="list-style-type: none"> Organizations that formulated the plan: Local government, DPT Formulated based on the Town Planning Act 1975/ พระราชบัญญัติการผังเมือง 2518 The plan is formulated all over the country. In Bangkok, the Bangkok Metropolitan Comprehensive Plan 2013/ ผังเมืองรวมกรุงเทพมหานครพ.ศ. 2556 is now being used. The contents of the plan include restrictions on land use, conservation of open spaces, transportation system plan, and infrastructure development plan.
	City Planning Act	Regulations on land use urban facilities		
	(Classification of Areas)	Article 7		
	City Planning Act	City planning areas: urbanization promotion areas, urbanization control areas	There is no system that directly designates urbanization promotion areas and urbanization control areas, but similar areas are designated under the Provincial Comprehensive Plan.	Provincial Comprehensive Plan <ul style="list-style-type: none"> Organizations that formulated the plan: Provincial government (องค์การบริหารส่วนจังหวัด), DPT This plan has now been formulated in all provinces in accordance with the Town Planning Act 1975/ พระราชบัญญัติการผังเมือง2518. This plan restricts land use in all areas of each province, but does not classify land use into many types. It clearly segments lands into urban areas, rural areas, forest conservation areas, and others. Accordingly, they are close in nature to the urbanization promotion areas and urbanization control areas that are stipulated in the City Planning Act of Japan. Provinces with an urban comprehensive plan covering the overall areas in each, such as Bangkok, Nonthaburi, and Sampakarn, have not formulated a provincial-level comprehensive plan.
	(Urban Redevelopment Policy, etc.)	Article 7-2		
Urban Renewal Act	Urban redevelopment policy	<ul style="list-style-type: none"> Local governments are not obliged to formulate these policies because there is no similar law in Thailand. However, some local governments have formulated similar policies in their operational policies. 	<ul style="list-style-type: none"> No urban redevelopment policy has been formulated in Thailand because the country does not have a law equivalent to the Urban Renewal Act. Legal grounds for the formulation of operational policies by local governments are the Bangkok Metropolitan Administration Governance Act 1985/ พระราชบัญญัติระเบียบบริหารราชการกรุงเทพมหานคร 	
Act on Special Measures concerning Promotion of Supply of Houses and Housing Lands in Urban Districts	Policy for the development of residential urban areas			
Act on Comprehensive Development of Regional Core Cities with Relocation of Office-Work Function	Policy for the development of core business urban areas			

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Laws	Plan, Project	Similar Plan in Thailand<*1>	Organization that Formulated the Plan, Legal Position of the Plan <*1>
Act on Promotion of Improvement of Disaster Control Districts in Populated Urban Districts	Policy for disaster prevention block improvement		<p>2528 and the Local Government Act 1953/ พระราชบัญญัติเทศบาล 2496.</p> <p>· Bangkok refers to its policies for the development of residential urban areas and core business urban areas in the Bangkok 12-Year Development Plan 2009–2020/ แผนพัฒนากรุงเทพมหานคร 12 ปี พ.ศ. 2565-2575.</p>
(Districts and Zones)	Article 8		
City Planning Act	Use districts, special use districts, special use restriction districts, exceptional floor area ratio districts, high-rise residential attraction districts, height control districts, high-level use districts, specified blocks, fire prevention districts or quasi-fire prevention districts, scenic districts	Urban Comprehensive Plan/ ผังเมืองรวม	<p>· Organizations that formulated the plan: Provincial government, DPT</p> <p>· To be formulated in accordance with the Town Planning Act 1975/ พระราชบัญญัติการผังเมือง 2518</p>
Building Standards Act	Basic matters on restrictions related to buildings (restrictions on roads, etc., restrictions on use, form restrictions, etc.), relevant ordinances, etc.	<p>· Building Control Act 1979/ พระราชบัญญัติควบคุมอาคาร พ.ศ. 2522</p> <p>· Local governments may set their own regulations by formulating ministry orders or ordinances based on the Building Control Act 1979.</p>	<p>· The Ministry of Interior is obliged to enforce the Building Control Act.</p> <p>· The local government (Thesaban/ เทศบาล) is responsible for building permissions within the areas under its jurisdiction.</p> <p>· In areas outside those under the jurisdiction of the local government, the organization under the jurisdiction of DPT holds the responsibility for building permissions.</p>
Parking Lot Act	Parking place development zones	No such zone is designated under a similar law. However, these zones may be designated under the ministry order or ordinance based on the Building Control Act 1979.	<p>· Organization that formulated the plan: Local government</p> <p>· Ministry orders and ordinances based on the Building Control Act 1979/ พระราชบัญญัติควบคุมอาคาร พ.ศ. 2522</p>
Urban Green Space Conservation Act	Green space conservation districts, special green space conservation districts, tree planting districts	<p>No such district is designated under a similar law. However, these districts may be designated in the following ways:</p> <p>(1) Designating one on the Open Space Map/ แผนผังแสดงพื้นที่โล่ง in the Urban Comprehensive Plan</p> <p>(2) Designating one in the specific plan/ ผังเมืองเฉพาะ</p>	<p>(1) To be formulated by DPT or the local government in accordance with the Town Planning Act 1975/ พระราชบัญญัติการผังเมือง 2518</p> <p>(2) To be formulated by DPT or the local government in accordance with the Town Planning Act 1975/ พระราชบัญญัติการผังเมือง 2518</p>

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			(3) Designating a district with building regulations with a ministry order or ordinance based on the Building Control Act	(3) A ministry order or ordinance based on the Building Control Act 1979/ พระราชบัญญัติควบคุมอาคารพ.ศ. 2522 is to be formulated by the local government.
	Port and Harbor Act	Port zones	No such zone is designated under a similar law. However, these zones may be designated in the specific plan/ ผังเมืองเฉพาะ.	To be formulated by DPT or the local government in accordance with the Town Planning Act 1975/ พระราชบัญญัติการผังเมือง2518.
	Act on Special Measures concerning Preservation of Traditional Scenic Beauty in Ancient Capitals	Special historic natural features conservation zones	No such zone is designated under a similar law. However, these zones may be designated in the following ways: (1) Designating one in the specific plan/ ผังเมืองเฉพาะ (2) Designating a district with building regulations with a ministry order or ordinance based on the Building Control Act	(1) To be formulated by DPT or the local government in accordance with the Town Planning Act 1975/ พระราชบัญญัติการผังเมือง2518 (2) A ministry order or ordinance based on the Building Control Act 1979/ พระราชบัญญัติควบคุมอาคารพ.ศ. 2522 is to be formulated by DPT or the local government. In Bangkok, such zone is designated in Rattanakosin District.
	Productive Green Land Act	Productive green zones	No such zone is designated under a similar law. However, these zones may be designated on the Zoning Map/ แผนผังจำแนกประเภทการใช้ประโยชน์ที่ดิน in the Urban Comprehensive Plan.	<ul style="list-style-type: none"> • To be formulated by DPT or the local government in accordance with the Town Planning Act 1975/ พระราชบัญญัติการผังเมือง2518 • These zones may receive treatment on fixed property tax in accordance with the Town Planning Act 1975, in the same way as the Productive Green Land Act.
	Act on the Improvement of Urban Distribution Centers	Physical distribution districts	No such district is designated under a similar law. However, these districts may be designated or developed in the following ways: (1) Designating one on the Zoning Map/ แผนผังจำแนกประเภทการใช้ประโยชน์ที่ดิน in the Urban Comprehensive Plan (2) Development is carried out by purchasing lands or through the compulsory purchase of lands by the Industrial Estate Authority of Thailand.	(1) To be formulated by DPT or the local government in accordance with the Town Planning Act 1975/ พระราชบัญญัติการผังเมือง2518 (2) To be implemented by the Industrial Estate Authority of Thailand in accordance with the Industrial Estate Authority of Thailand Act 1979/ พระราชบัญญัติการนิคมอุตสาหกรรมแห่งประเทศไทย 2522
	Act on the Protection of Cultural Properties	Conservation zones for clusters of traditional structures	No such zone is designated under a similar law. However, these zones may be designated in the following ways: (1) Designating one on the Zoning Map/	(1) To be formulated by DPT or the local government in accordance with the Town Planning Act 1975/ พระราชบัญญัติการผังเมือง2518

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		<p>แผนผังจำแนกประเภทการใช้ประโยชน์ที่ดิน in the Urban Comprehensive Plan</p> <p>(2) Designating one in the Specific Plan/ ผังเมืองเฉพาะ</p> <p>(3) Designating a district with building regulations with a ministry order or ordinance based on the Building Control Act</p> <p>(4) Designating one in accordance with the Environmental Quality Management Plan/ แผนจัดการคุณภาพสิ่งแวดล้อม that was formulated by the Ministry of Natural Resources and the Environment</p>	<p>(2) To be formulated by DPT or the local government in accordance with the Town Planning Act 1975/ พระราชบัญญัติการผังเมือง2518</p> <p>(3) A ministry order or ordinance based on the Building Control Act 1979/ พระราชบัญญัติควบคุมอาคารพ.ศ. 2522 is to be formulated by the local government.</p> <p>(4) The Minister of Natural Resources and Environment may designate these zones as a ministry order in accordance with the Improvement and Conservation of the National Environmental Quality Act 1992/ พระราชบัญญัติส่งเสริมและรักษาคุณภาพสิ่งแวดล้อมแห่งชาติพ.ศ. ๒๕๓๕.</p>
Act on Special Measures concerning Countermeasures against Aircraft Noise around Specified Airports	Aircraft noise control zones, aircraft noise control special zones	<p>No such zone is designated under a similar law. However, these zones may be designated in the following ways:</p> <p>① Designating one in the Specific Plan/ ผังเมืองเฉพาะ</p> <p>② Designating a district with building regulations with a ministry order or ordinance based on the Building Control Act</p>	<p>① To be formulated by DPT or the local government in accordance with the Town Planning Act 1975/ พระราชบัญญัติการผังเมือง 2518</p> <p>② A ministry order or ordinance based on the Building Control Act 1979/ พระราชบัญญัติควบคุมอาคารพ.ศ. 2522 is to be formulated by the local government.</p>
Act on Promotion of Improvement of Disaster Control Districts in Populated Urban Districts	Specified disaster prevention block improvement zones	<p>No such zone is designated under a similar law. However, these zones may be designated in the following ways:</p> <p>① Designating one in the Specific Plan/ ผังเมืองเฉพาะ</p> <p>② Designating a district with building regulations with a ministry order or ordinance based on the Building Control Act</p>	<p>① To be formulated by DPT or the local government in accordance with the Town Planning Act 1975/ พระราชบัญญัติการผังเมือง 2518</p> <p>② A ministry order or ordinance based on the Building Control Act 1979/ พระราชบัญญัติควบคุมอาคารพ.ศ. 2522 is to be formulated by the local government.</p>
Act on Special Measures concerning Urban Reconstruction	Urban regeneration special areas	<p>No such area is designated under a similar law. However, these areas may be designated on the Zoning Map/</p> <p>แผนผังจำแนกประเภทการใช้ประโยชน์ที่ดิน in the Urban Comprehensive Plan.</p>	<ul style="list-style-type: none"> · Organization that formulated the plan: DPT or the local government · An area is designated with a ministry order based on the Town Planning Act 1975/ พระราชบัญญัติการผังเมือง2518 · Currently, in the Urban Comprehensive Plan of Bangkok, regulations on the scale of buildings based on the Building Control Act have been eased in areas around the stations, and a floor-area-ratio bonus is granted to promote the high-level use of those areas.

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Landscape Act	Landscape zones	No such zone is designated under a similar law. However, these zones may be designated in the following ways: ① Designating one in the Specific Plan/ ผังเมืองเฉพาะ ② Designating a district with building regulations with a ministry order or ordinance based on the Building Control Act	① To be formulated by DPT or the local government in accordance with the Town Planning Act 1975/ พระราชบัญญัติการผังเมือง 2518 ② A ministry order or ordinance based on the Building Control Act 1979/ พระราชบัญญัติควบคุมอาคารพ.ศ. 2522 is to be formulated by the local government.
(Project Promotion Areas)	Article 10-2		
Act on Special Measures concerning Promotion of Supply of Houses and Housing Lands in Urban Districts	Land readjustment promotion areas, residential-block construction promotion areas	There is no land readjustment promotion area exclusively for the development of residential areas. However, land readjustment promotion areas may be designated in accordance with the Land Readjustment Act 2004.	The Provincial Land Readjustment Committee คณะกรรมการจัดรูปที่ดินเพื่อพัฒนาพื้นที่ส่วนจังหวัด of the provincial government designates land readjustment promotion areas in accordance with the Land Readjustment Act 2004/ พระราชบัญญัติจัดรูปที่ดินเพื่อพัฒนาพื้นที่ 2547.
Urban Renewal Act	Urban redevelopment promotion areas	None	In Thailand, there is no law that is similar to the Urban Renewal Act of Japan.
Act on Comprehensive Development of Regional Core Cities with Relocation of Office-Work Function	Land readjustment promotion areas for core business urban development	There is no land readjustment promotion area exclusively for the development of industrial/business areas. However, land readjustment promotion areas may be designated in accordance with the Land Readjustment Act 2004.	The Provincial Land Readjustment Committee/ คณะกรรมการจัดรูปที่ดินเพื่อพัฒนาพื้นที่ส่วนจังหวัด of the provincial government designates land readjustment promotion areas in accordance with the Land Readjustment Act 2004/ พระราชบัญญัติจัดรูปที่ดินเพื่อพัฒนาพื้นที่ 2547.
(Urban disaster recovery promotion areas)	Article 10-4		
Act on Special Measures concerning Reconstruction of Urban Districts Damaged by Disaster	Urban disaster recovery promotion areas	No such area is designated under a similar law. However, these areas may be designated in the following ways for the prevention of disasters and recovery of disaster-affected areas: ① Designating one in the specific plan/ ผังเมืองเฉพาะ for the purpose of preventing disasters or reconstructing disaster-affected areas. ② For areas damaged by a large-scale fire, recovery promotion areas are designated as fire prone areas/ เขตเพลิงไหม้ based on the Building Control Act. ③ A land readjustment project is implemented for the purpose of the reconstruction of a disaster-affected area by designating it as a land readjustment promotion area in accordance with the Land Readjustment Act 2004.	① To be formulated by DPT or the local government in accordance with the Town Planning Act 1975/ พระราชบัญญัติการผังเมือง 2518 ② A fire-damaged area improvement plan is formulated by the local government in accordance with the Building Control Act 1979/ พระราชบัญญัติควบคุมอาคารพ.ศ. 2522. ③ The Provincial Land Readjustment Committee คณะกรรมการจัดรูปที่ดินเพื่อพัฒนาพื้นที่ส่วนจังหวัด of the provincial government designates land readjustment promotion areas in accordance with the Land Readjustment Act 2004/ พระราชบัญญัติจัดรูปที่ดินเพื่อพัฒนาพื้นที่ 2547.
(Urban Facilities)	Article 11		

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	Laws	Plan, Project	Similar Plan in Thailand<*1>	Organization that Formulated the Plan, Legal Position of the Plan <*1>
	Road Act, Act on Rail Tracks, Parking Lot Act, Railway Business Act, etc.	Traffic facilities: Roads, urban rapid-transit railroads, parking places, motor vehicle terminals, and others	① Urban planning standards a. Urban Comprehensive Plan Standard 2006/ กณฑ์และมาตรฐานผังเมืองรวม 2549 b. Bangkok Urban Planning Standard 2010/ มาตรฐานด้านผังเมืองของกรุงเทพมหานคร2553 Standard of the Ministry of Transport (มาตรฐานกระทรวงคมนาคม)	<ul style="list-style-type: none"> Infrastructure development is carried out by the Ministry of Interior, government organizations, and public utility enterprises under the jurisdiction of the Ministry of Transport. Housing projects are implemented by the National Housing Authority. Urban planning standards are not positioned legally but are applied when the Urban Comprehensive Plan is formulated. The standard “a” on the left was formulated by DPT and “b” was formulated by the City Government of Bangkok. The standard of the relevant government organization is applied when each urban facility is developed. The standards of the individual ministries are positioned as ministry orders or project implementation manuals.
	Urban Park Act, etc.	Open spaces for public use: Parks (urban planning parks), green areas (urban planning green areas), open spaces, cemeteries, and others	① Urban planning standards a. Urban Comprehensive Plan Standard 2006/ กณฑ์และมาตรฐานผังเมืองรวม 2549 b. Bangkok Urban Planning Standard 2010/ มาตรฐานด้านผังเมืองของกรุงเทพมหานคร2553 ② National Housing Authority Living Environment Standard/ มาตรฐานที่อยู่อาศัยและสิ่งแวดล้อมของการเคหะแห่งชาติ	
	Sewerage Act, etc.	Supply facilities, treatment facilities: Waterworks, electricity supply facilities, gas supply facilities, sewer systems, wastewater treatment facilities, garbage incinerators, and others	① Urban planning standards a. Urban Comprehensive Plan Standard 2006/ เกณฑ์และมาตรฐานผังเมืองรวมพ.ศ.2549 b. Bangkok Urban Planning Standard 2010/ มาตรฐานด้านผังเมืองของกรุงเทพมหานคร2553 ② Standards of relevant organizations a. Ministry of Public Health Standard/ มาตรฐานกระทรวงสาธารณสุข b. Ministry of Industry Standard/ มาตรฐานกระทรวงอุตสาหกรรม c. Ministry of Natural Resources and Environment Standard/ มาตรฐานกระทรวงทรัพยากรธรรมชาติและสิ่งแวดล้อม	

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	River Act, Canals Act	Waterways: Rivers, canals, and others	① Relevant laws a. Waterway Act 1962/ พระราชบัญญัติคั้นและคูน้ำพ.ศ.2505 b. Public Waterway Project Act 1942/ พระราชบัญญัติการชลประทานหลวงพ.ศ.2485 c. Private Waterway Project Act 1939/ พระราชบัญญัติการชลประทานราษฎร์พ.ศ.2482 ② Ministry of Agriculture and Cooperatives Standard/ มาตรฐานกระทรวงเกษตรและสหกรณ์	
	Act on Construction, of Government and Other Public Office Facilities, etc.	Educational and cultural facilities: Schools, libraries, research facilities, and others Medical and social welfare facilities: Hospitals, nursery schools, and others Collective housing facilities, collective government and public office facilities	① Urban planning standards a. Urban Comprehensive Plan Standard 2006/ เกณฑ์และมาตรฐานผังเมืองรวม 2549 b. Bangkok Urban Planning Standard 2010/ มาตรฐานด้านผังเมืองของกรุงเทพมหานคร2553 ② Standards of relevant organizations a. Ministry of Education Standard/ มาตรฐานกระทรวงศึกษาธิการ b. Ministry of Public Health Standard/ มาตรฐานกระทรวงสาธารณสุข c. National Housing Authority Living Environment Standard/ มาตรฐานที่อยู่อาศัยและสิ่งแวดล้อมของการเคหะแห่งชาติ	
	Wholesale Market Act, Slaughterhouse Act, etc.	Markets, slaughterhouses, crematoria	<ul style="list-style-type: none"> • Ministry of Public Health Standard/ มาตรฐานกระทรวงสาธารณสุข • Department of Local Administration Ministry of Interior Standard 	
	Act on the Improvement of Urban Distribution Centers	Distribution business parks	None	

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(Urban Development Projects)	Article 12		
Land Readjustment Act	Land readjustment projects	Land Readjustment Project/ โครงการจัดรูปที่ดินเพื่อพัฒนาพื้นที่	<ul style="list-style-type: none"> · The project implementing body is the union of DPT, National Housing Authority, local government, special government agency, or juridical person. · To be implemented based on the Land Readjustment Act 2004/ พระราชบัญญัติจัดรูปที่ดินเพื่อพัฒนาพื้นที่2547
New Housing and Urban Development Act	New housing and urban development projects	There has been no project implemented under a similar law. However, these projects may be implemented as those of the National Housing Authority.	<ul style="list-style-type: none"> · The project implementing body is the National Housing Authority. · To be implemented in accordance with the National Housing Authority Act 1994/ พระราชบัญญัติการเคหะแห่งชาติ 2537
Urban Renewal Act	Urban redevelopment projects	None	In Thailand, there is no law that is similar to the Urban Renewal Act of Japan.
Act on Development of Infrastructures for New Cities	New city foundation development projects	<p>There has been no project implemented under a similar law. However, these projects may be implemented in the following ways:</p> <ul style="list-style-type: none"> ① Implementing one as a foundation development project under the specific plan/ ผังเมืองเฉพาะ ② Implementing one as a project of the National Housing Authority ③ Implementing one as a project of the Industrial Estate Authority of Thailand 	<ul style="list-style-type: none"> ① To be formulated by DPT or the local government in accordance with the Town Planning Act 1975/ พระราชบัญญัติการผังเมือง2518 ② Implementing the project in accordance with the National Housing Authority Act 1994/ พระราชบัญญัติการเคหะแห่งชาติ 2537 ③ Implementing the project in accordance with the Industrial Estate Authority of Thailand Act 1979/ ④ พระราชบัญญัติการนิคมอุตสาหกรรมแห่งประเทศไทย 2522
Act on Special Measures concerning Promotion of Supply of Houses and Housing Lands in Urban Districts	Residential-block construction projects	<p>There has been no project implemented under a similar law. However, these projects may be implemented in the following ways:</p> <ul style="list-style-type: none"> ① Implementing one as land readjustment (การจัดรูปที่ดินเพื่อพัฒนาพื้นที่) ② Implementing one as a project of the National Housing Authority 	<ul style="list-style-type: none"> ① The project implementing body is the union of DPT, National Housing Authority, local government, special government agency, or juridical person. The project is implemented in accordance with the Land Readjustment Act 2004/ พระราชบัญญัติจัดรูปที่ดินเพื่อพัฒนาพื้นที่2547. ② Implementing the project in accordance with the National Housing Authority Act 1994/ พระราชบัญญัติการเคหะแห่งชาติ 2537
Act on Promotion of Improvement of Disaster Control Districts in Populated Urban Districts	Disaster prevention blocks improvement projects	There has been no project implemented under a similar law. However, these projects may be implemented through the supply of public housing by the local government, which is carried out through the compulsory purchase of	<ul style="list-style-type: none"> · To be formulated by DPT or the local government in accordance with the Town Planning Act 1975/ พระราชบัญญัติการผังเมือง2518

Appendix 2-1

	Laws	Plan, Project	Similar Plan in Thailand<*1>	Organization that Formulated the Plan, Legal Position of the Plan <*1>
			lands under the specific plan/ ผังเมืองเฉพาะ	
	Act on Arrangement of Suburban Development and Redevelopment Areas and Urban Development Areas in the Metropolitan Area Act on Arrangement and Development of Suburban Development and Redevelopment Areas and Urban Development Areas in the Kinki Area (District Planning Etc.)	Industrial park development projects Article 12-4	To be implemented as projects of the Industrial Estate Authority of Thailand	· Implementing the project in accordance with the Industrial Estate Authority of Thailand Act 1979/ พระราชบัญญัติการนิคมอุตสาหกรรมแห่งประเทศไทย 2522
	City Planning Act	District plans	Specific plan/ผังเมืองเฉพาะ	To be formulated by DPT or the local government in accordance with the Town Planning Act 1975/ พระราชบัญญัติการผังเมือง2518
	Act on Maintenance and Improvement of Traditional Scenery in Certain Districts	Historic scenery maintenance and improvement district plans	There is no similar law in Thailand. However, a specific plan/ ผังเมืองเฉพาะ based on the Town Planning Act 1975 may be formulated as a historic scenery maintenance and improvement district plan.	To be formulated by DPT or the local government in accordance with the Town Planning Act 1975/ พระราชบัญญัติการผังเมือง2518
	Act on Promotion of Improvement of Disaster Control Districts in Populated Urban Districts	Disaster prevention block improvement zone plans	There is no similar law in Thailand. However, a specific plan/ ผังเมืองเฉพาะ based on the Town Planning Act 1975 may be formulated as a disaster prevention block improvement zone plan.	To be formulated by DPT or the local government in accordance with the Town Planning Act 1975/ พระราชบัญญัติการผังเมือง2518
	Act on Improvement of Areas Along Trunk Roads	Road side district plans	There is no similar law in Thailand. However, a specific plan/ ผังเมืองเฉพาะ based on the Town Planning Act 1975 may be formulated as a road side district plan.	To be formulated by DPT or the local government in accordance with the Town Planning Act 1975/ พระราชบัญญัติการผังเมือง2518
	Community Areas Development Act	Rural district plans	There is no similar law in Thailand. However, a specific plan/ ผังเมืองเฉพาะ based on the Town Planning Act 1975 may be formulated as a rural district plan.	To be formulated by DPT or the local government in accordance with the Town Planning Act 1975/ พระราชบัญญัติการผังเมือง2518
	Civil Code	Real rights (possession, ownership), usufruct (superficies, servitudes, etc.), real rights obtained by security (mortgages, etc.), claims (sale, leases, etc.)		An Act Promulgating the Land Code 1954/ พระราชบัญญัติให้ใช้ประมวลกฎหมายที่ดิน 2497
Other Relevant Laws	Act on Land and Building Leases			Civil and Commercial Code/

Appendix 2-1

	Laws	Plan, Project	Similar Plan in Thailand<*1>	Organization that Formulated the Plan, Legal Position of the Plan <*1>
				พระราชกฤษฎีกาให้ใช้บทบัญญัติแห่งประมวลกฎหมายแพ่งและพาณิชย์
	Act on Building Unit Ownership, etc.			The Condominium Act 1979/ พระราชบัญญัติอาคารชุด 2522
	Act on Facilitation of Reconstruction of Condominiums			The Condominium Act 1979/ พระราชบัญญัติอาคารชุด 2522
	Real Property Registration Act			<ul style="list-style-type: none"> · An Act Promulgating the Land Code 1954/ · พระราชบัญญัติให้ใช้ประมวลกฎหมายที่ดิน 2497 · The Department of Lands of the Ministry of Interior holds jurisdiction over land registration, the registration of condominium ownership, site division, and other similar matters.
	Act on Real Estate Appraisal			Civil and Commercial Code/ พระราชกฤษฎีกาให้ใช้บทบัญญัติแห่งประมวลกฎหมายแพ่งและพาณิชย์
	Act on Loan of Urban Development Fund	Loan provided by the national government to the local government, etc.	A loan may be available from the local administration fund of the Department of Local Administration, Ministry of Interior, depending on the contents of the project to be implemented.	
	Act on Special Measures Concerning the Promotion of Urban Development by Private Sectors	Loan provided by the Organization for Promoting Urban Development, etc.	None	
	Act on Promotion of Private Finance Initiative	Private Finance Initiative (PFI)	<ul style="list-style-type: none"> · For government projects, there is a law concerning concession exclusively for each project. · Public-Private Partnership (PPP) Act 2013/ พระราชบัญญัติการให้เอกชนร่วมลงทุนในกิจการของรัฐ 2556 	

*1: National Spatial Planning and Regional Policy Bureau, the Ministry of Land, Infrastructure, Transport and Tourism, March 2013

*2: The numerical figure after each phrase in Thai characters indicates the Buddhist calendar year, which is 543 years ahead of the Western calendar year.

Source: Created by the JICA Survey Team

Appendix 6–1

Development Concept Paper (Draft)

CONCEPT PAPER (DRAFT)

Ver. Sep. 21

Concept Paper for Bang Sue Area

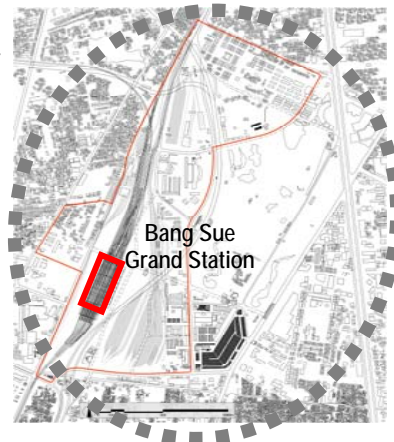


* Objectives

- ☑ Year 2032, 12 (twelve) years later since Red Line's inauguration, will be the target year of the present concept paper.
- ☑ To clarify development concepts and actions among different stakeholders as common purposes.
- ☑ To widely share, in the international community as well as inside the country, the development needs for CBD and the main roles of Bang Sue Area, which will be one of the main traffic terminals in Bangkok emerging as a worldwide urban agglomeration.
- ☑ To form an international and regional business and interaction center.
- ☑ To prepare a guideline to promote a well-balanced area development.

* Target Area

Bang Sue Grand Station and the neighboring land are the target area for the development concepts.



* Vision

Bang Sue – Gateway to “City of Angels”

A dynamic and attractive super urban core where people from all over the world get together for joy and creation
Based on “Business area”, “Super Arena” and “Convention Center”, Bang Sue Area shall be expected to continuously offer different types of original culture, information and ideas created by all types of people living and getting together in the area.

* Basic Concepts

Concept 1 To grow up to a centripetal urban core in Bangkok Metropolitan Area which plays important roles in the international community.

- (1) To form an international and regional business and interaction center.
- (2) To ensure sustainability including safety and environmentally friendliness.

Concept 2 To create an eternally beloved new central district full of various attractiveness.

- (1) To create various attractions of urban life, from old to new, from a bustle of marketplaces to ultramodern skyscrapers.
- (2) To create a comfortable walking space so that everyone should enjoy strolling the along decks and paths in the area.

Concept 3 To create a visitor-friendly traffic terminal area comfortable for everyone.

- (1) To create a world-level traffic terminal area comfortable for both Thai and foreign visitors.
- (2) To upgrade the user-friendliness in terms of transfer by creating public spaces.

Concept 4 To stepwisely realize the conceptual plan by both public and private sectors.

- (1) To enhance all kinds of partnership between Public-Private and Private-Private, beside a strong initiative by the public, in order to properly realize the conceptual plan.

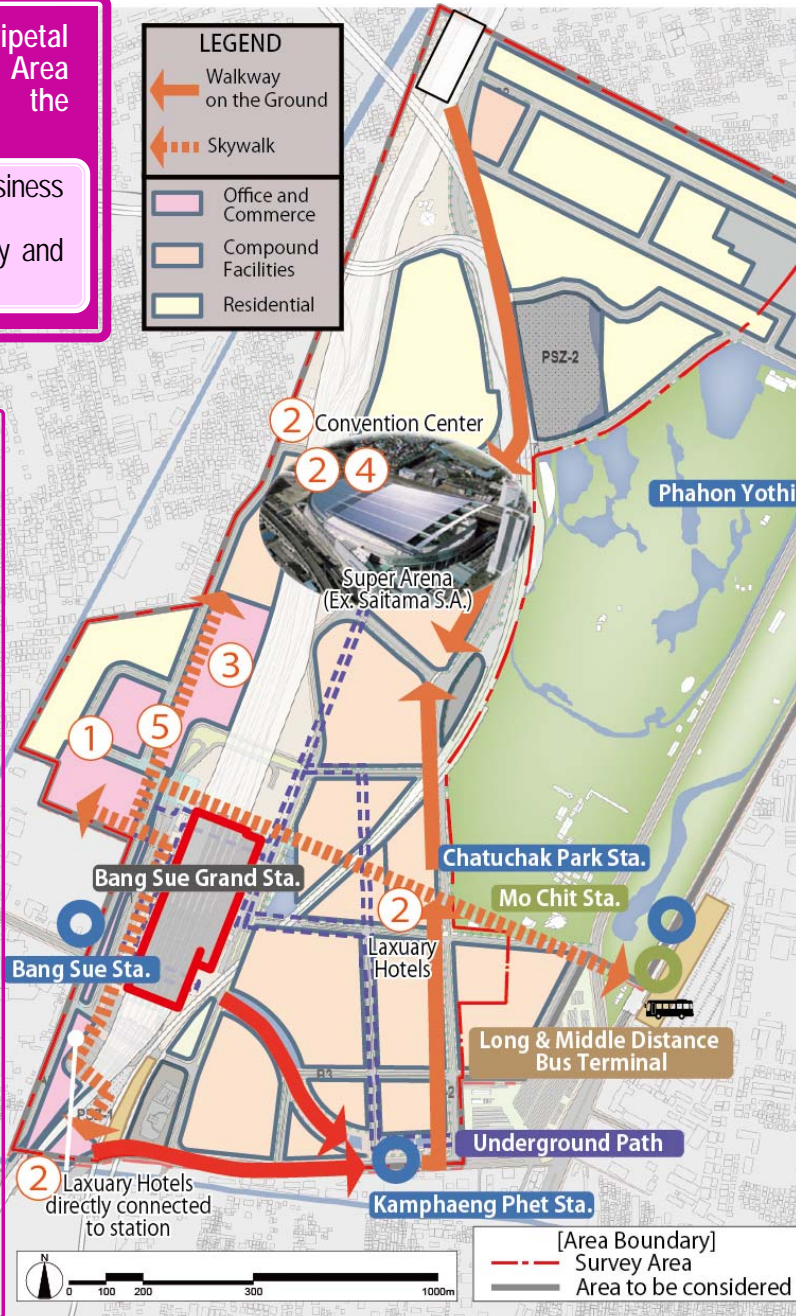
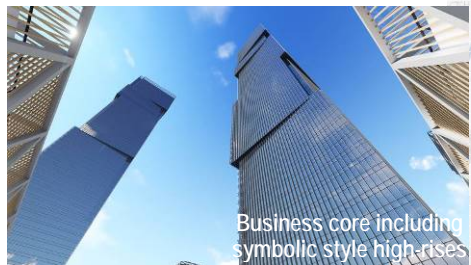
Concept 1: To grow up to a centripetal urban core in Bangkok Metropolitan Area which plays important roles in the international community.

- (1) To form an international and regional business and interaction center.
- (2) To ensure sustainability including safety and environmentally friendliness.

Strengthen urban functions for business core

① **Business functions**

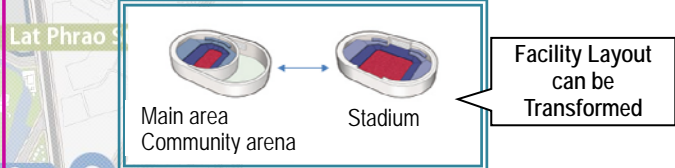
- To promote governmental office buildings, business incubation centers, and R&D centers with a view to making the next leap from the current presence as the existing manufacturing industry base in the Mekong Sub-Region.



Create symbolic spaces with interaction function

② **MICE functions**

- To construct symbolic MICE-related facilities such as super arena, convention center, hotels, etc. along the connecting paths between stations in and near the area.
- To organize various kinds of events (music, sports, industry, culture, etc.) and promote shooting movies in the area.



③ **Commerce and Entertainment function**

- To create a bustle and amusing place for Bangkok citizens, Thai people, and visitors from all over the world, relax, stroll, and interact one another.

Retails and Entertainment Facilities

Buildings and Open spaces

Enhance disaster preparedness and energy efficiency

④ **Improvement in preparedness against flooding**

- To make the best use of the super arena as emergency gathering shelter in case of flooding.

⑤ **Environmental impact reduction**

- To promote the first case of a smart city.

Concept 2: To create an eternally beloved new central district full of various attractiveness.

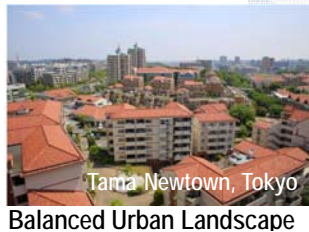
- (1) To create various attractions of urban life, from old to new, from a bustle of marketplaces to ultramodern skyscrapers.
- (2) To create a comfortable walking space so that everyone should enjoy strolling the along decks and paths in the area. space so that everyone should enjoy strolling the along decks and paths in the area.

Promote developments with distinctive features

- ① **Potential local resources**
 - To upgrade the attractiveness of the area by making the best use of potential local resources including the neighboring parks and Chatuchak Market.
- ② **Create refreshing spaces for visitors**
 - To create refreshing urban oasis by exploiting the neighboring greenery areas and planting trees in redevelopment areas.

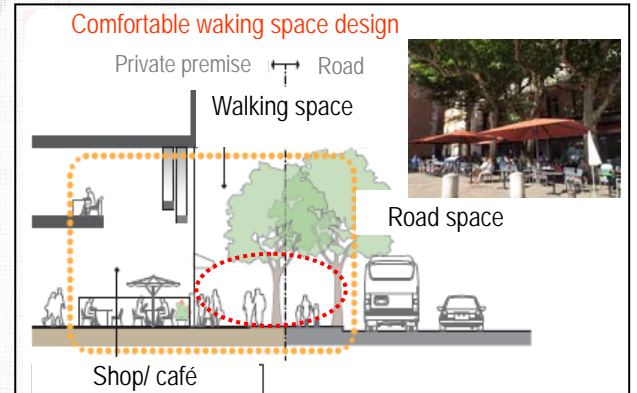
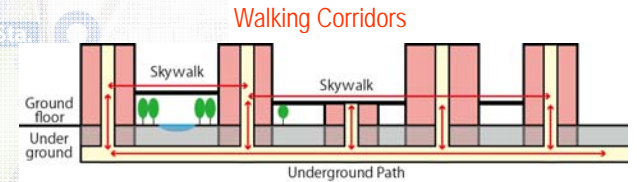


- ③ **Balanced urban landscape (Guideline)**
 - To prepare a guideline and to create and preserve balanced urban landscape by controlling design, coloring, lighting, plants, public spaces, etc.



Connect Station to surrounding development areas

- ④ **Attractive space to be created on the borderlines between public open spaces and surrounding buildings**
 - To create integrated walking corridors by both underground paths and skywalks.
 - To create attractive walking spaces for pedestrians by redesigning the existing main axes and feeder roads, and making the best use of the borderlines between public roads and private premises from the viewpoint of the comfort of strolling visitors. Effective facilities shall be provided to avoid outside summer heat and stormy rains to augment comfort.



- ⑤ **Networking among stations**
 - To strengthen the connection between Station -SRT Land and Station-Chatuchak Market with a view to creating a worthy bustle for a gateway of the capital.
 - To express the maximum hospitality to all domestic and foreign visitors by ingenious urban design for public spaces along main walking axes.

Concept 3: To create a visitor-friendly traffic terminal area comfortable for everyone

- (1) To create a world-level traffic terminal area comfortable for both Thai and foreign visitors.
- (2) To upgrade the user-friendliness in terms of transfer by creating public spaces

■ To form a visitor-friendly traffic terminal area easy to understand for everyone

① Moving facilitation along main walking axes

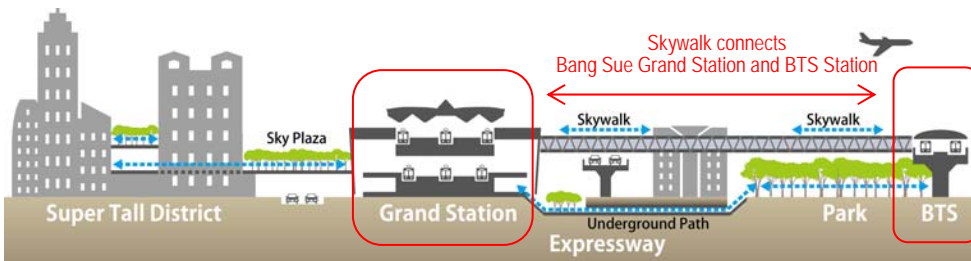
- To promote barrier-free and universal design concept to facilitate movements and transfers of elderly and physically disabled people. Effective measures to avoid summer heat and stormy rains shall be also taken. (Ex. Escalators, elevators, moving walkways, roofs, air-conditioners, etc.)

② New means of transportation

- To provide a new means of transportation to network different development zones in the area such as BRT with a view to improving the convenience, boosting the development and enhancing the synergy of the area functions.

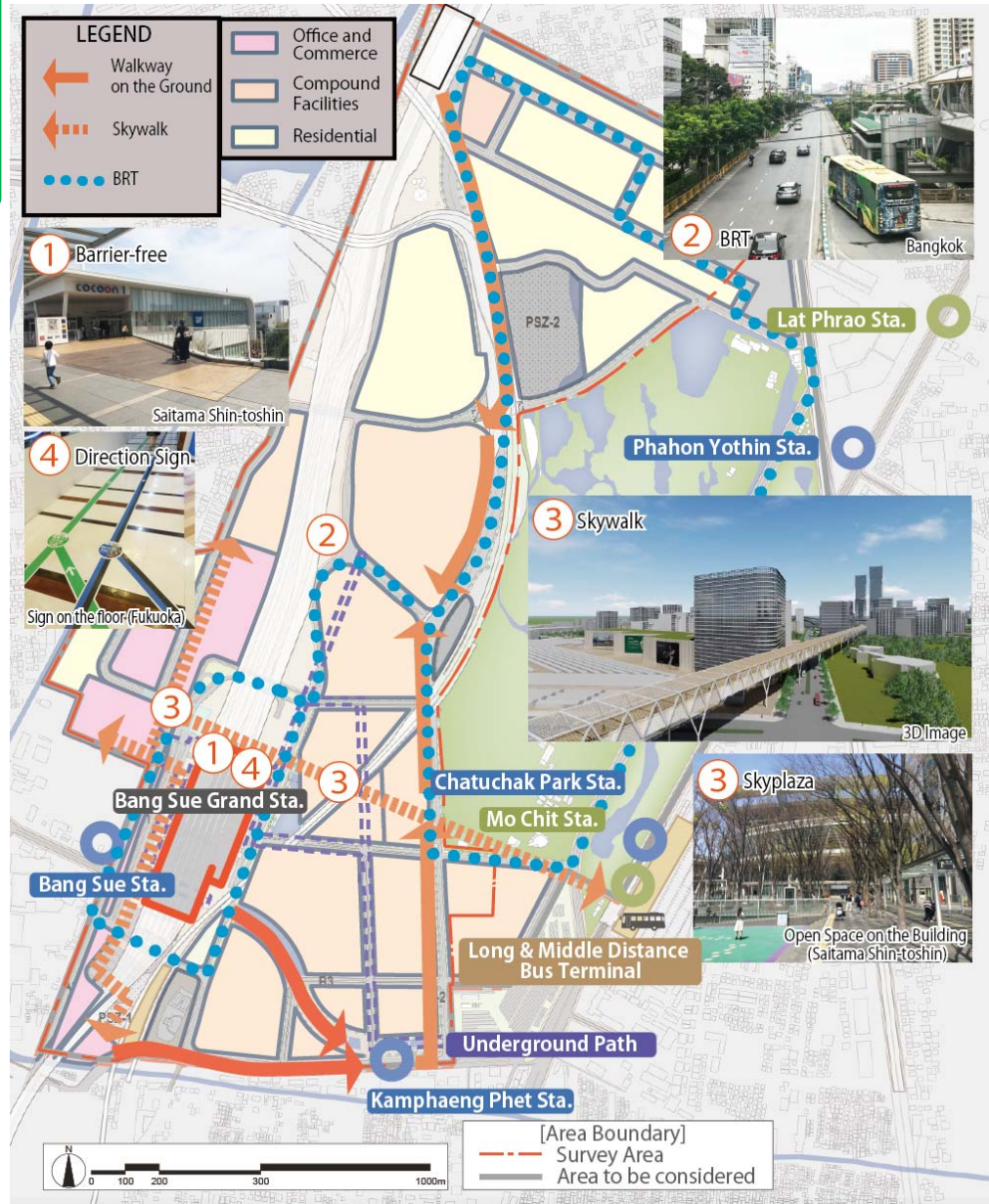
③ "Skywalk" and "Sky Plaza"

- To construct a "Skywalk" and a "Sky Plaza" for facilitating visitors' movements and transfers, as there will be at least several hundreds of thousands of peoples visiting Bang Sue Area a day through railways: Blue Line, Red Line, BTS, the existing Thai Railways Line, and high-speed rails.



④ Direction boards

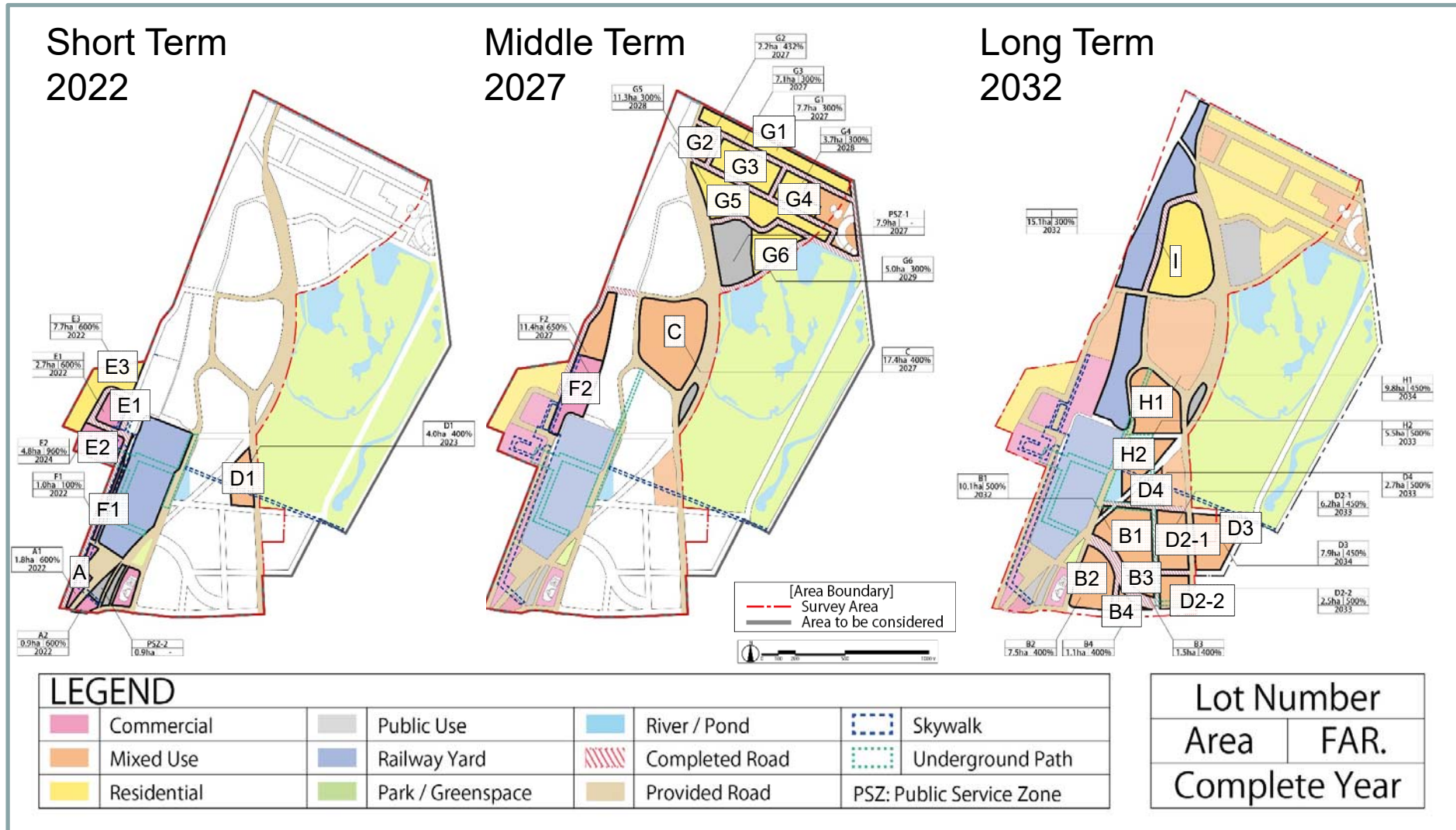
- To promote digital signage and multi-linguistic direction system to meet the needs of different types of visitors



Concept 4: To stepwisely implement the concept plan with close cooperation among developers, land owners and city governments

Ver. Sep.21

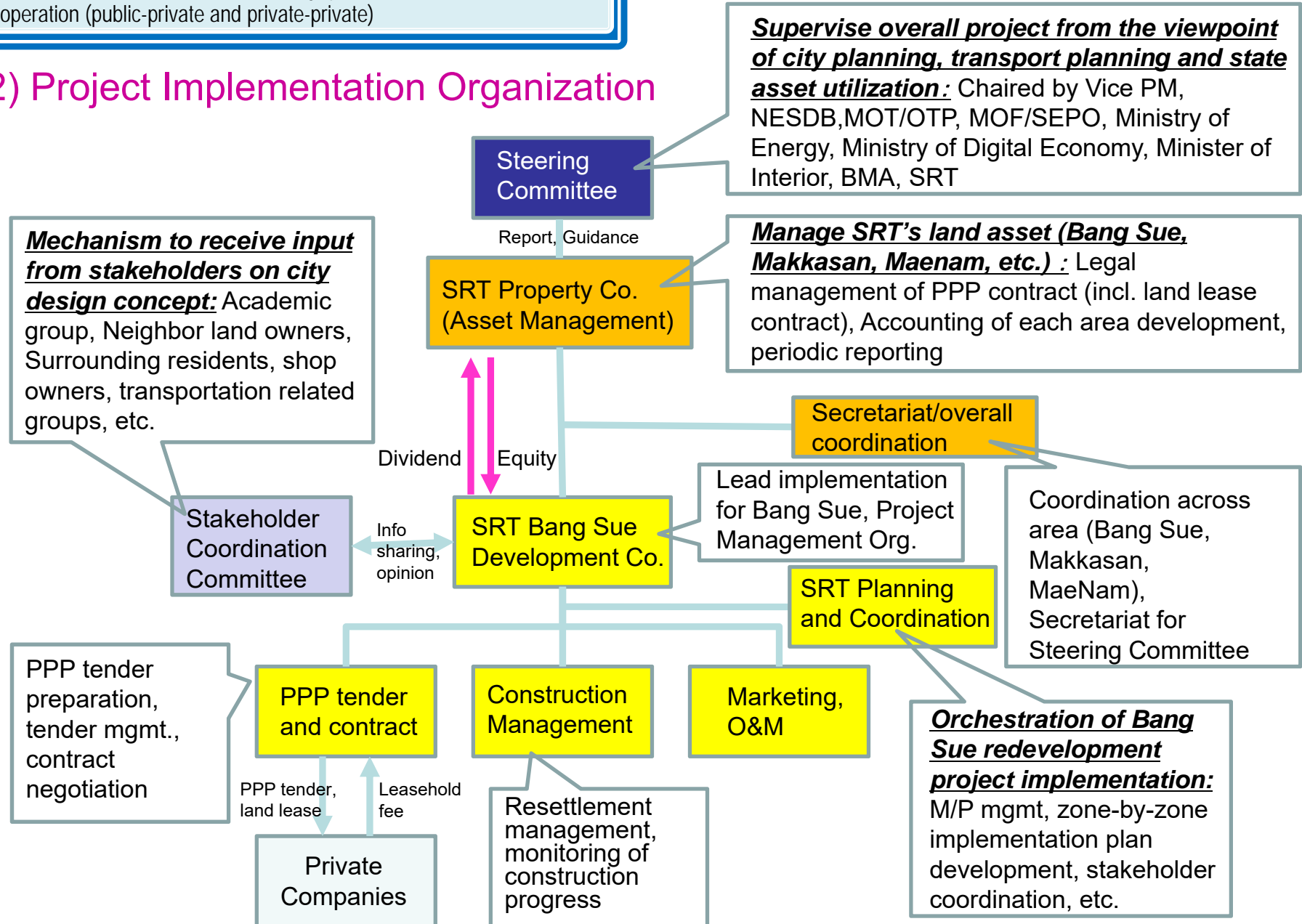
1) Stepwise Development Plan



Concept 4: To stepwisely implement the concept plan with close cooperation among developers, land owners and city governments

(1) To orchestrate all stakeholders by public initiative and interactive cooperation (public-private and private-private)

2) Project Implementation Organization

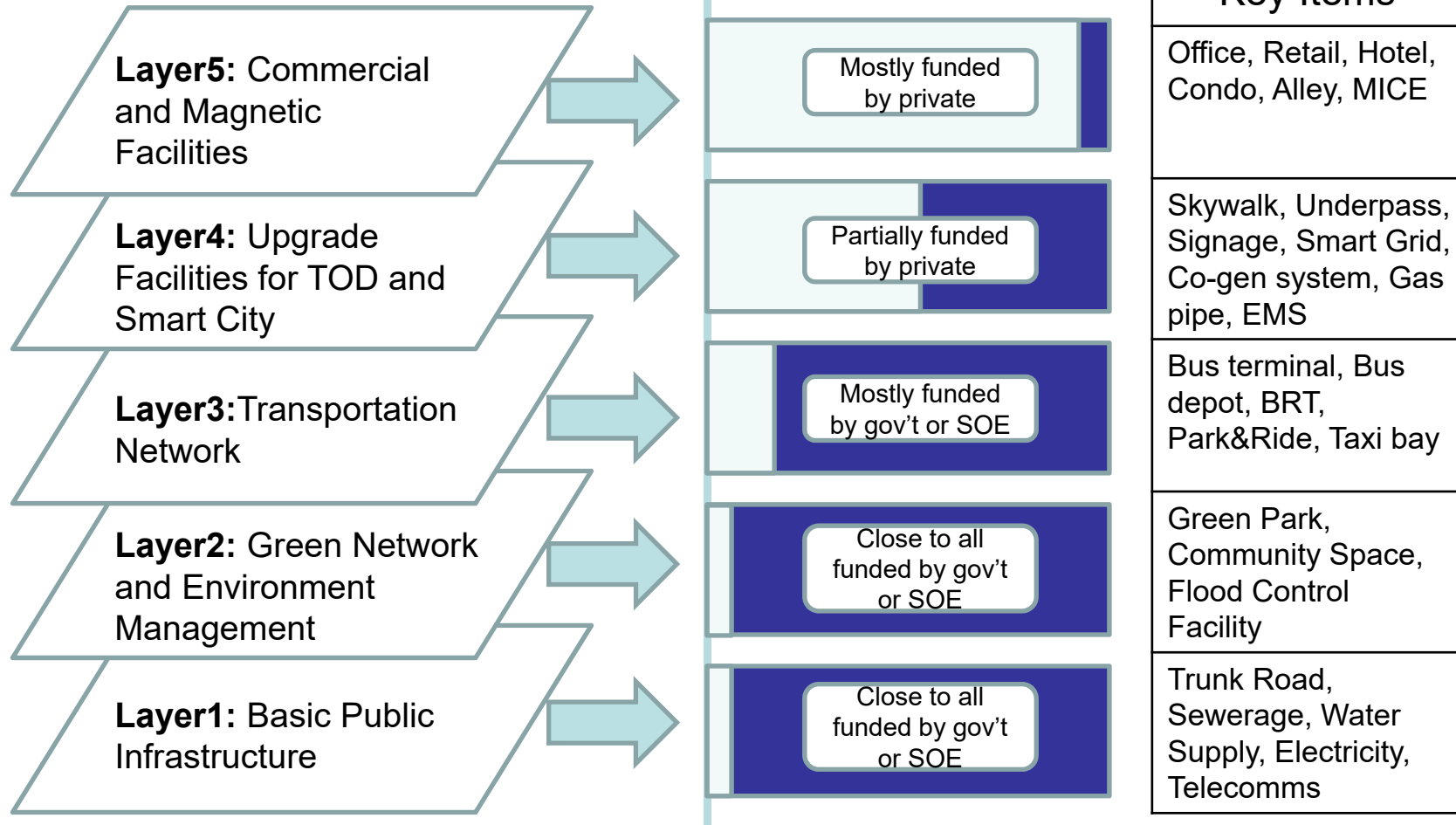


Concept 4: To stepwisely implement the concept plan with close cooperation among developers, land owners and city governments

(1) To orchestrate all stakeholders by public initiative and interactive cooperation (public-private and private-private)

3) Fundraising (Basic Funding Allocation Principles)

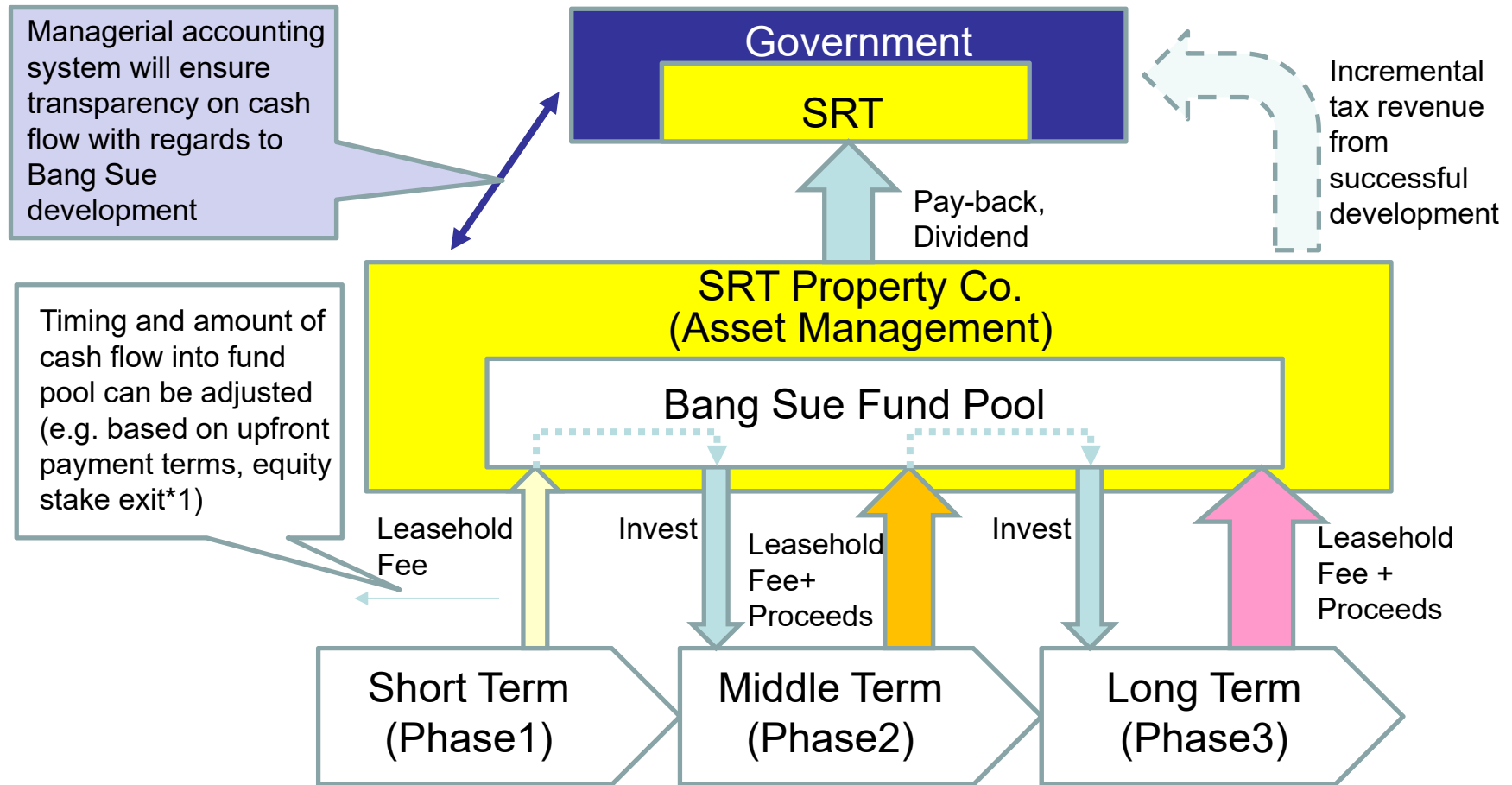
Funded by Private
 Funded by Gov't or SOE



Concept 4: To stepwisely implement the concept plan with close cooperation among developers, land owners and city governments

(1) To orchestrate all stakeholders by public initiative and interactive cooperation (public-private and private-private)

4) Fundraising (Phased Usage of Fund Pool)



*1 SRT could convert leasehold rights into equity portion of SPC. Once SPC realizes stable operating cashflow, then, this could be sold to infrastructure fund (e.g. REIT)

Appendix 7-1

Infrastructure Plans (existing and plan)

NO.	SECTOR	DRAWING TITLE	DRAWING NO.
1.	EXISTING GAS AND OIL PIPE WORK	EXISTING PLAN OF GAS AND OIL PIPE	EX - GOP - 01
2.	EXISTING POWER SUPPLY WORK	EXISTING PLAN OF POWER SUPPLY	EX - PS - 01
3.	EXISTING ROAD WORK	EXISTING PLAN OF ROAD	EX - RD - 01
4.	EXISTING WATER SUPPLY WORK	EXISTING PLAN OF WATER SUPPLY	EX - WS - 01
5.	EXISTING DRAINAGE WORK	EXISTING PLAN OF DRAINAGE	EX - DR - 01
6.	EXISTING TELECOMMUNICATION WORK	EXISTING PLAN OF TELECOMMUNICATION	EX - TELE - 01
7.	GENERAL	LOT LAYOUT PLAN	GN - 01
8.	ROAD WORK	PLAN OF ROAD	GN - RD - 01
9.	ROAD WORK	TYPICAL CROSS SECTION OF ROAD 35 M.	GN - RD - 02
10.	ROAD WORK	PLAN OF UNDERGROUND PASSAGE AND SKY WALK	GN - RD - 03
11.	WATER SUPPLY WORK	PLAN OF WATER SUPPLY	GN - WS - 01
12.	DRAINAGE WORK	PLAN OF DRAINAGE	GN - DR - 01
13.	SEWERAGE WORK	PLAN OF SEWER	GN - SW - 01
14.	POWER SUPPLY WORK	PLAN OF POWER SUPPLY	GN - PS - 01

JICA SURVEY TEAM

Data Collection Survey on
Urban Redevelopment in Bang Sue Area

SECTOR :

LIST OF DRAWINGS

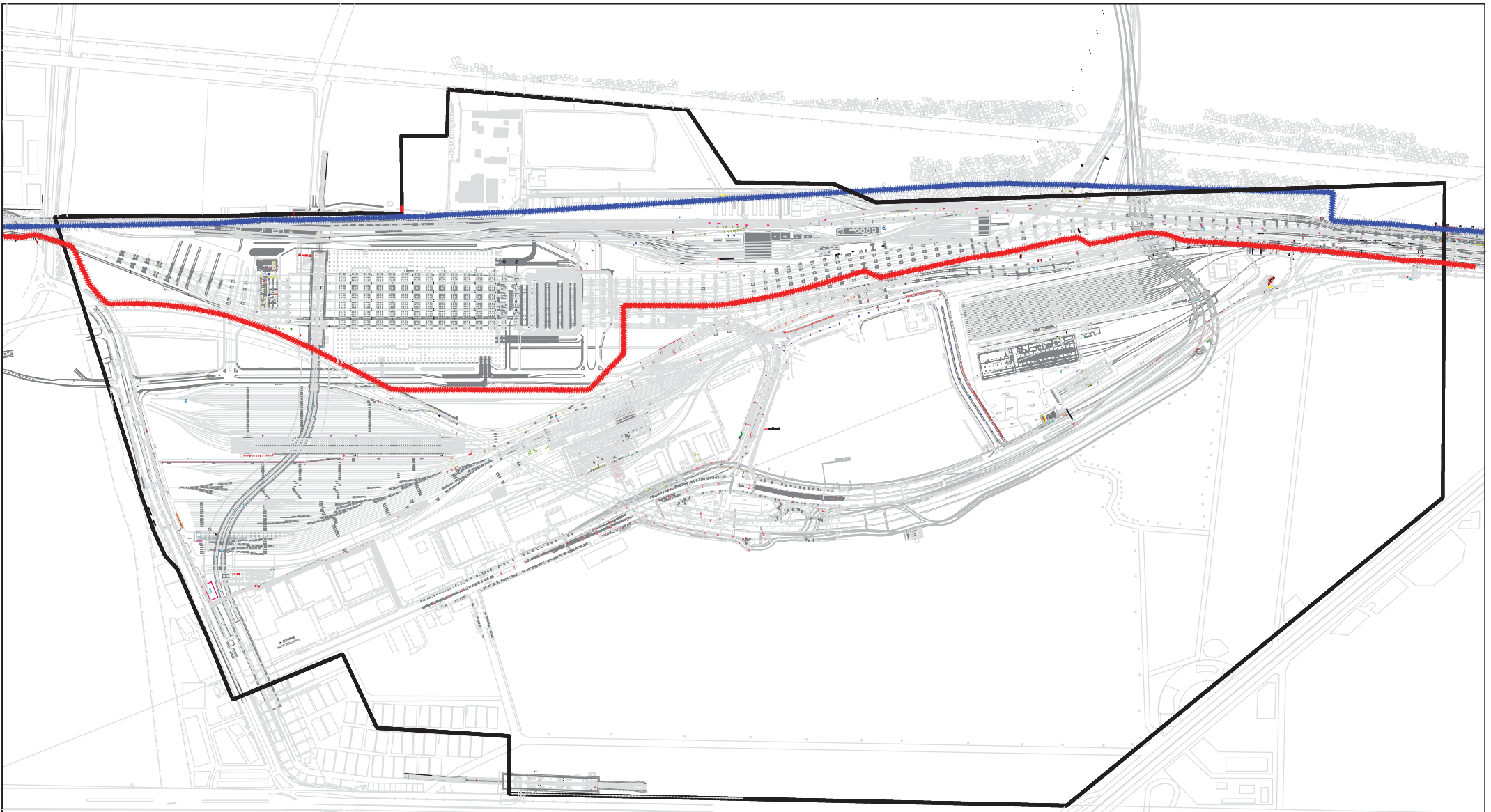
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DRAWING TITLE :

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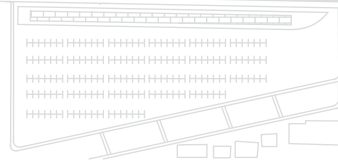
DATE: July 17, 2017



PTT Underground Gas Pipe
Line Dia. 12 inches



FPT Underground High
Pressure Oil Pipe Line Dia. 14 inches



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Data Collection Survey on
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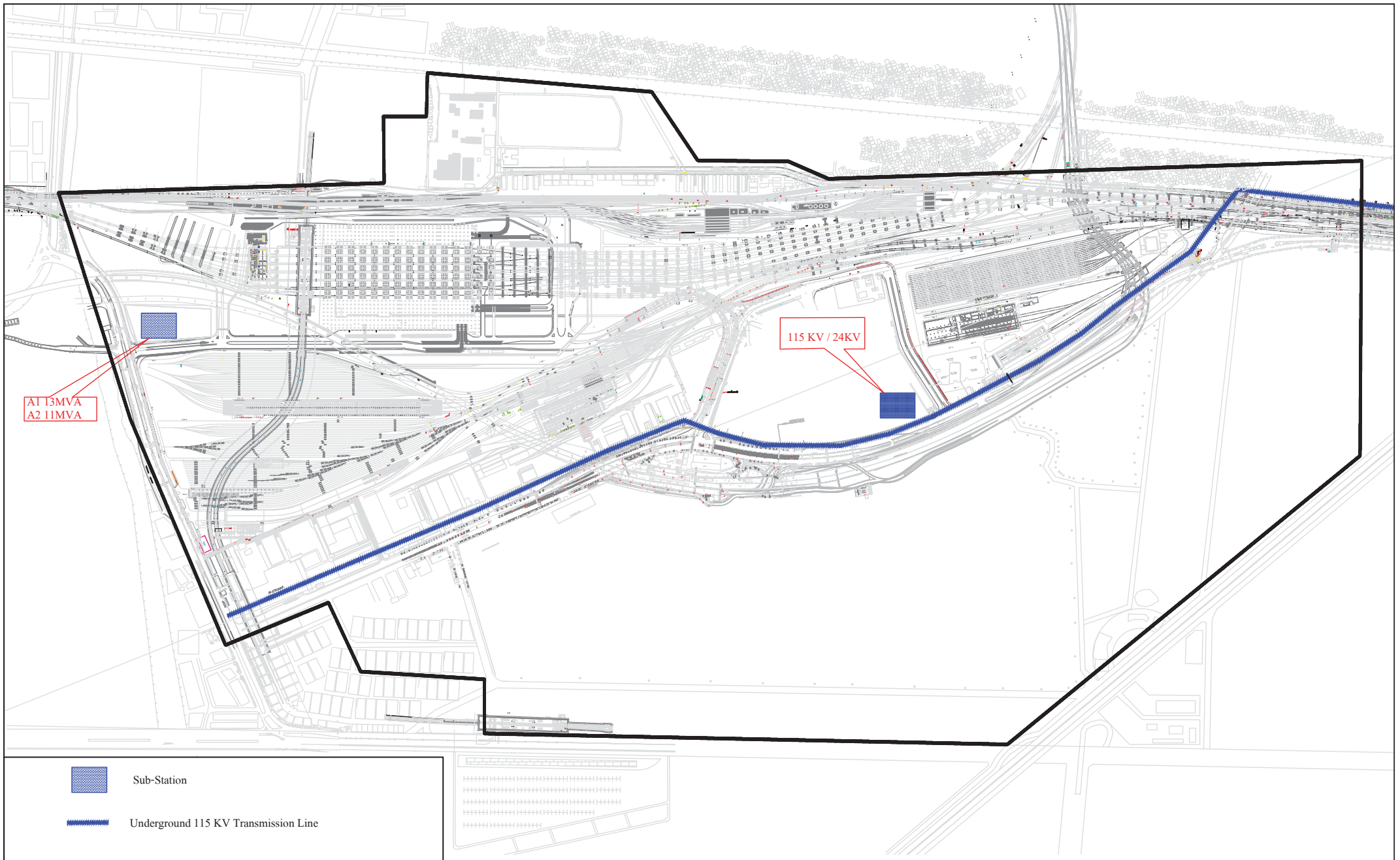
SECTOR : EXISTING GAS AND OIL PIPE WORK

DRAWING TITLE : EXISTING PLAN OF GAS AND OIL WORK

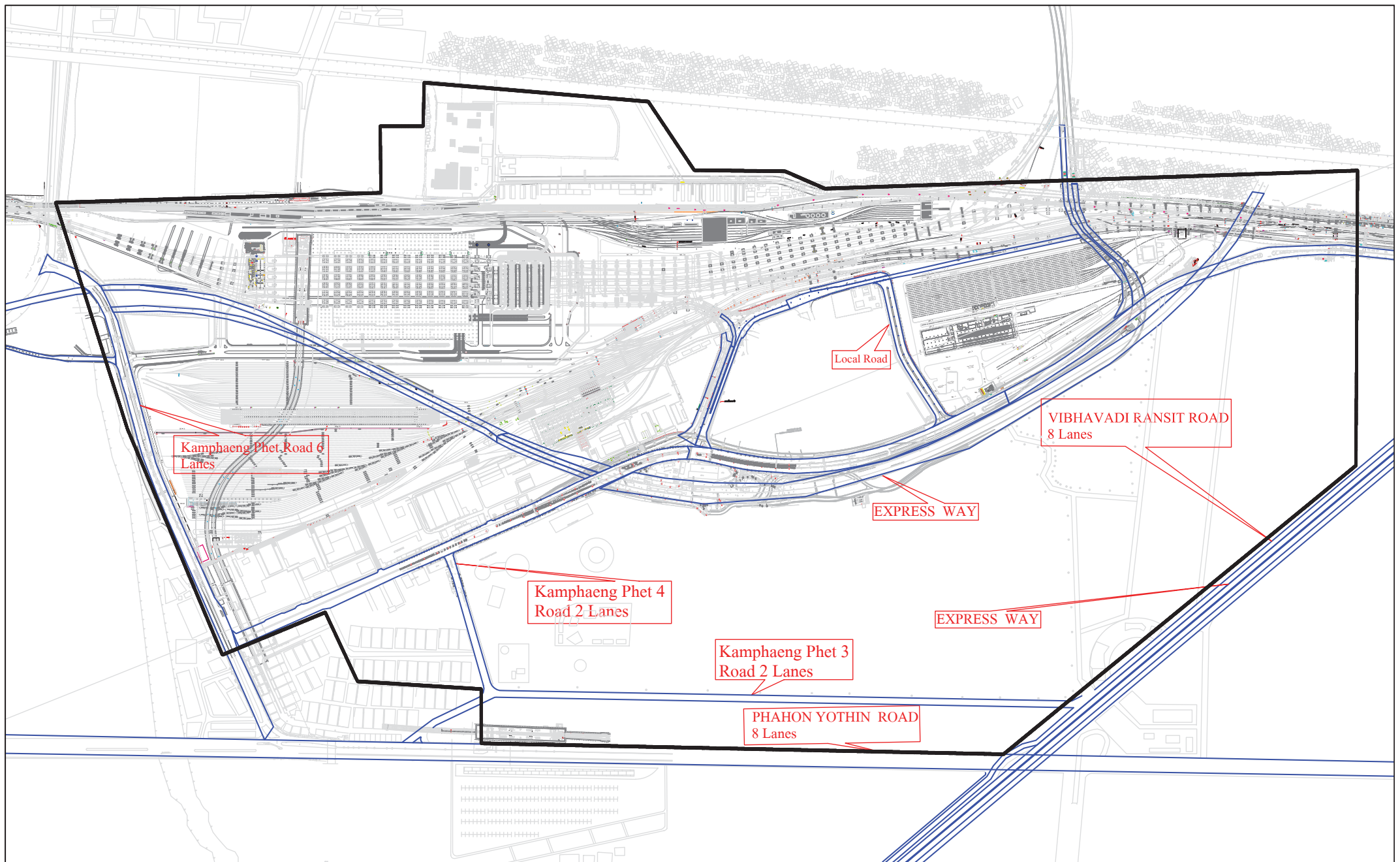
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DRAWING NO.
EX - GOP - 01

DATE : JULY 17, 2017



<p>JICA SURVEY TEAM</p> <p>Data Collection Survey on Urban Redevelopment in Bang Sue Area</p>	<p>SECTOR : EXISTING POWER SUPPLY WORK</p>	<p>DRAWING NO. EX - PS - 01</p>
	<p>DRAWING TITLE : EXISTING PLAN OF POWER SUPPLY</p>	<p>DATE : JULY 17,2017</p>
<p>SCALE :</p>		



<p>JICA SURVEY TEAM</p> <p>Data Collection Survey on Urban Redevelopment in Bang Sue Area</p>	SECTOR :	EXISTING ROAD WORK	DRAWING NO.
	DRAWING TITLE :	EXISTING PLAN OF ROAD	EX - RD - 01
	SCALE :		DATE :
			JULY 17, 2017

NO.	SECTOR	DRAWING TITLE	DRAWING NO.
1.	EXISTING GAS AND OIL PIPE WORK	EXISTING PLAN OF GAS AND OIL PIPE	EX - GOP - 01
2.	EXISTING POWER SUPPLY WORK	EXISTING PLAN OF POWER SUPPLY	EX - PS - 01
3.	EXISTING ROAD WORK	EXISTING PLAN OF ROAD	EX - RD - 01
4.	EXISTING WATER SUPPLY WORK	EXISTING PLAN OF WATER SUPPLY	EX - WS - 01
5.	EXISTING DRAINAGE WORK	EXISTING PLAN OF DRAINAGE	EX - DR - 01
6.	EXISTING TELECOMMUNICATION WORK	EXISTING PLAN OF TELECOMMUNICATION	EX - TELE - 01
7.	GENERAL	LOT LAYOUT PLAN	GN - 01
8.	ROAD WORK	PLAN OF ROAD	GN - RD - 01
9.	ROAD WORK	TYPICAL CROSS SECTION OF ROAD 35 M.	GN - RD - 02
10.	ROAD WORK	PLAN OF UNDERGROUND PASSAGE AND SKY WALK	GN - RD - 03
11.	WATER SUPPLY WORK	PLAN OF WATER SUPPLY	GN - WS - 01
12.	DRAINAGE WORK	PLAN OF DRAINAGE	GN - DR - 01
13.	SEWERAGE WORK	PLAN OF SEWER	GN - SW - 01
14.	POWER SUPPLY WORK	PLAN OF POWER SUPPLY	GN - PS - 01

JICA SURVEY TEAM

Data Collection Survey on
Urban Redevelopment in Bang Sue Area

SECTOR :

LIST OF DRAWINGS

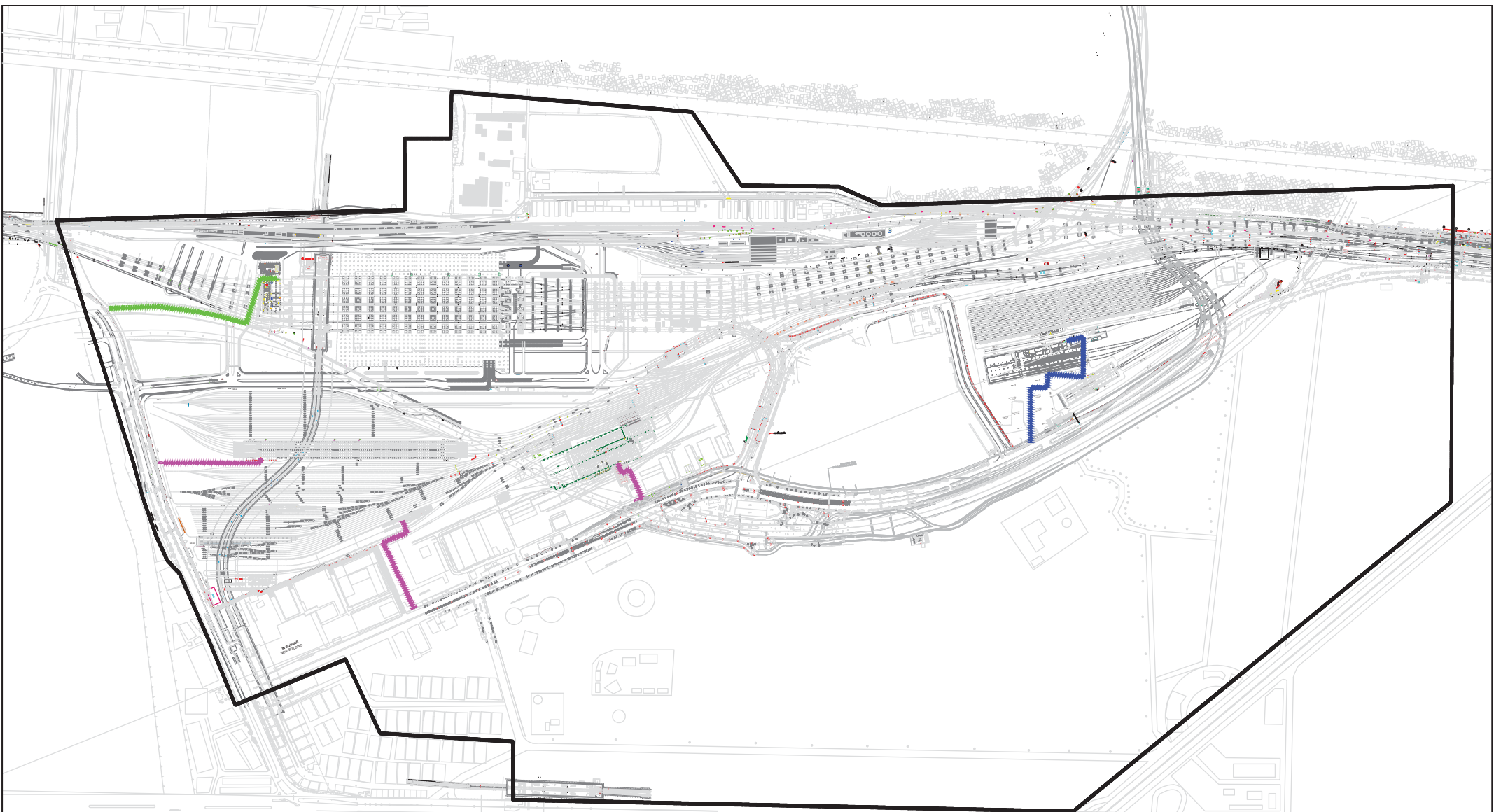
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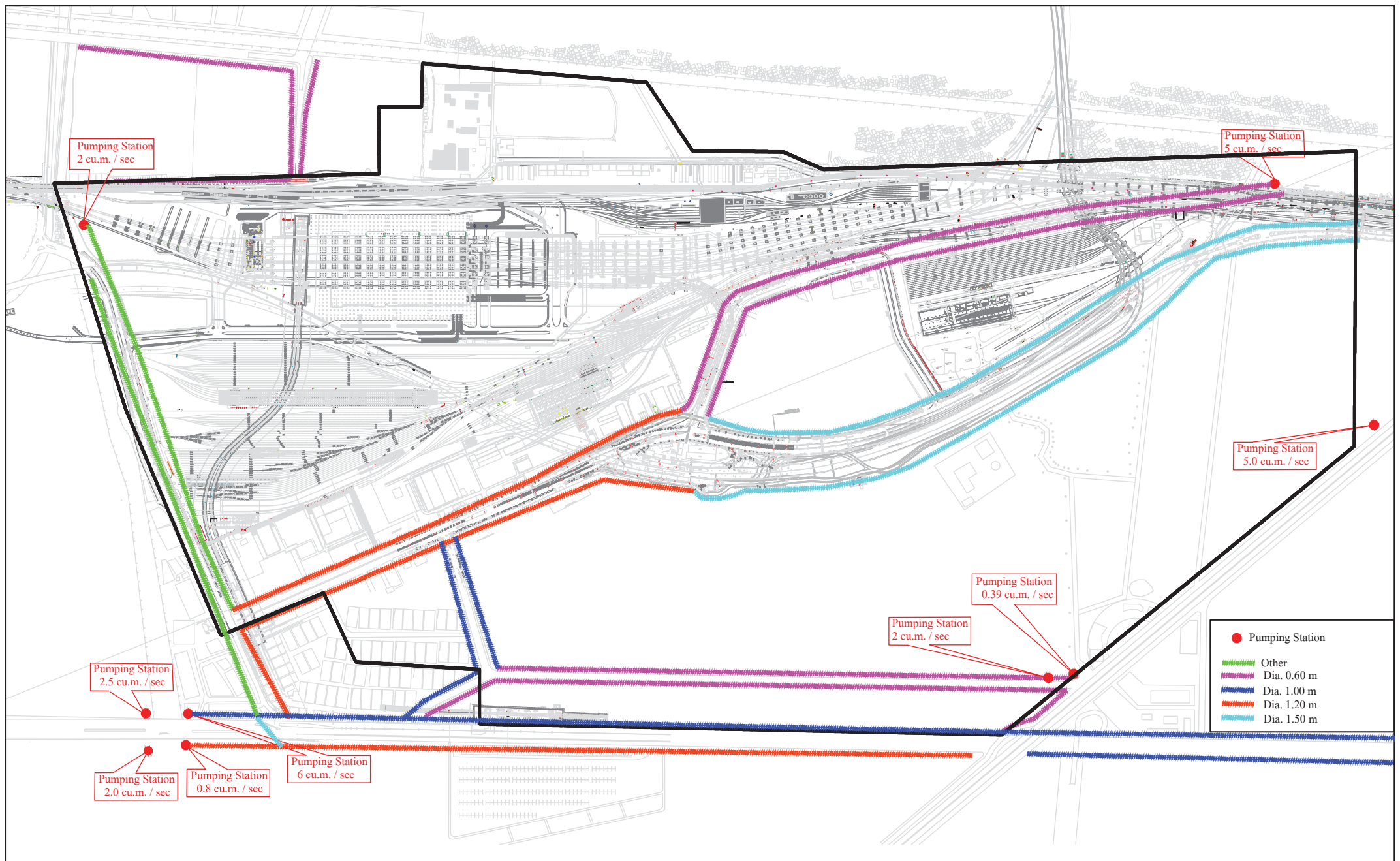
DRAWING NO.

DATE: July 17, 2017



- CW. Dia. 10" (HDPE PN10) (UNDERGROUND)
- CW. Dia. 4" (HDPE PN10) (UNDERGROUND)
- CW. Dia. 12" (HDPE PN10) (UNDERGROUND)

<p>JICA SURVEY TEAM</p> <p>Data Collection Survey on Urban Redevelopment in Bang Sue Area</p>	<p>SECTOR : EXISTING WATER SUPPLY WORK</p> <p>DRAWING TITLE : EXISTING PLAN OF WATER SUPPLY</p> <p>SCALE : </p>	<p>DRAWING NO.</p> <p style="text-align: center; font-size: 1.2em;">EX - WS - 01</p> <p>DATE : JULY 17,2017</p>
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JICA SURVEY TEAM

Data Collection Survey on
Urban Redevelopment in Bang Sue Area

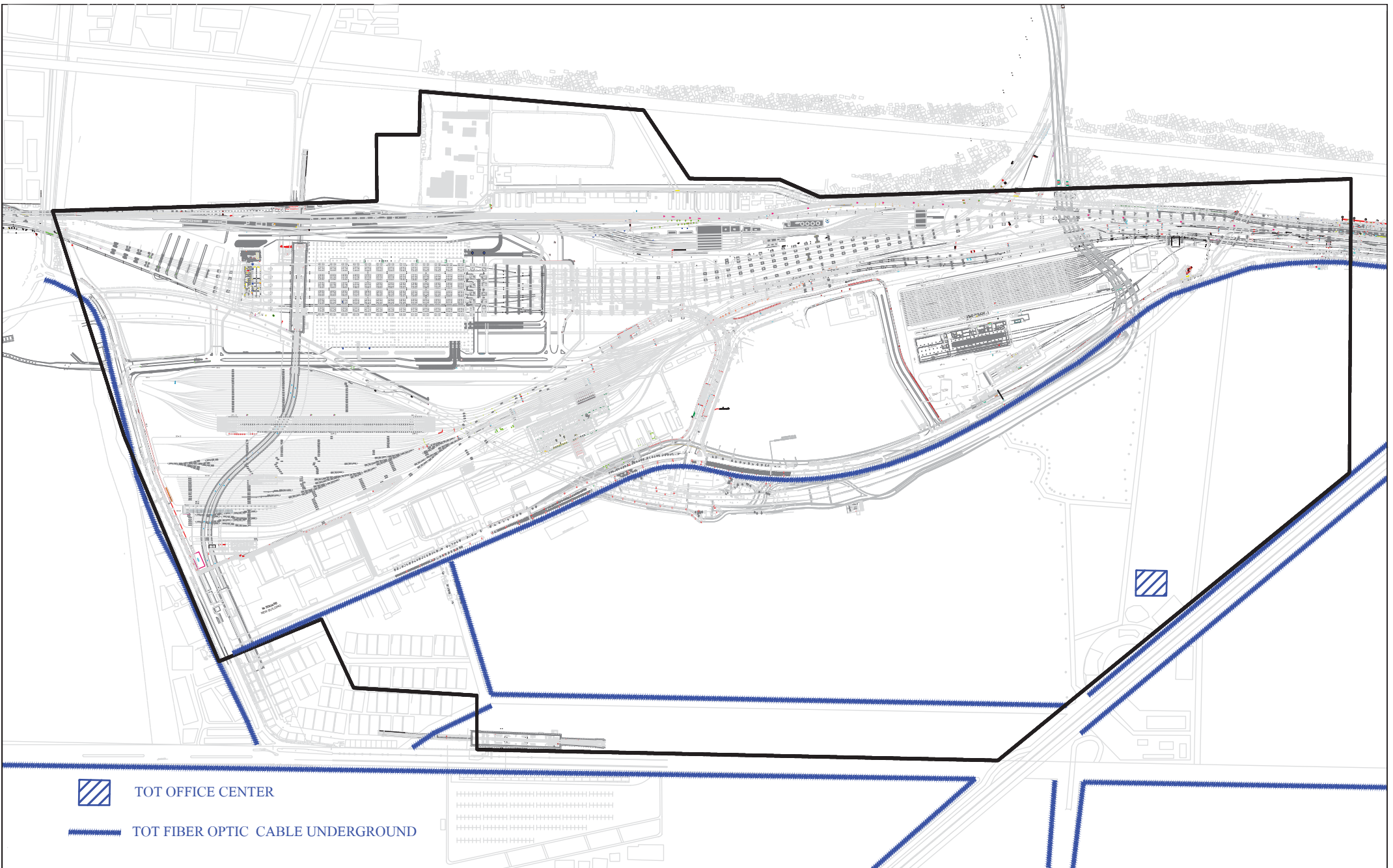
SECTOR : **EXISTING DRAINAGE WORK**

DRAWING TITLE : **EXISTING PLAN OF DRAINAGE**

SCALE :

DRAWING NO.
EX - DR - 01

DATE : **JULY 17, 2017**



TOT OFFICE CENTER



TOT FIBER OPTIC CABLE UNDERGROUND

JICA SURVEY TEAM

Data Collection Survey on
Urban Redevelopment in Bang Sue Area

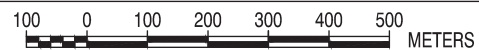
SECTOR :

EXISTING TELECOMMUNICATION WORK

DRAWING TITLE :

EXISTING PLAN OF TELECOMMUNICATION

SCALE :

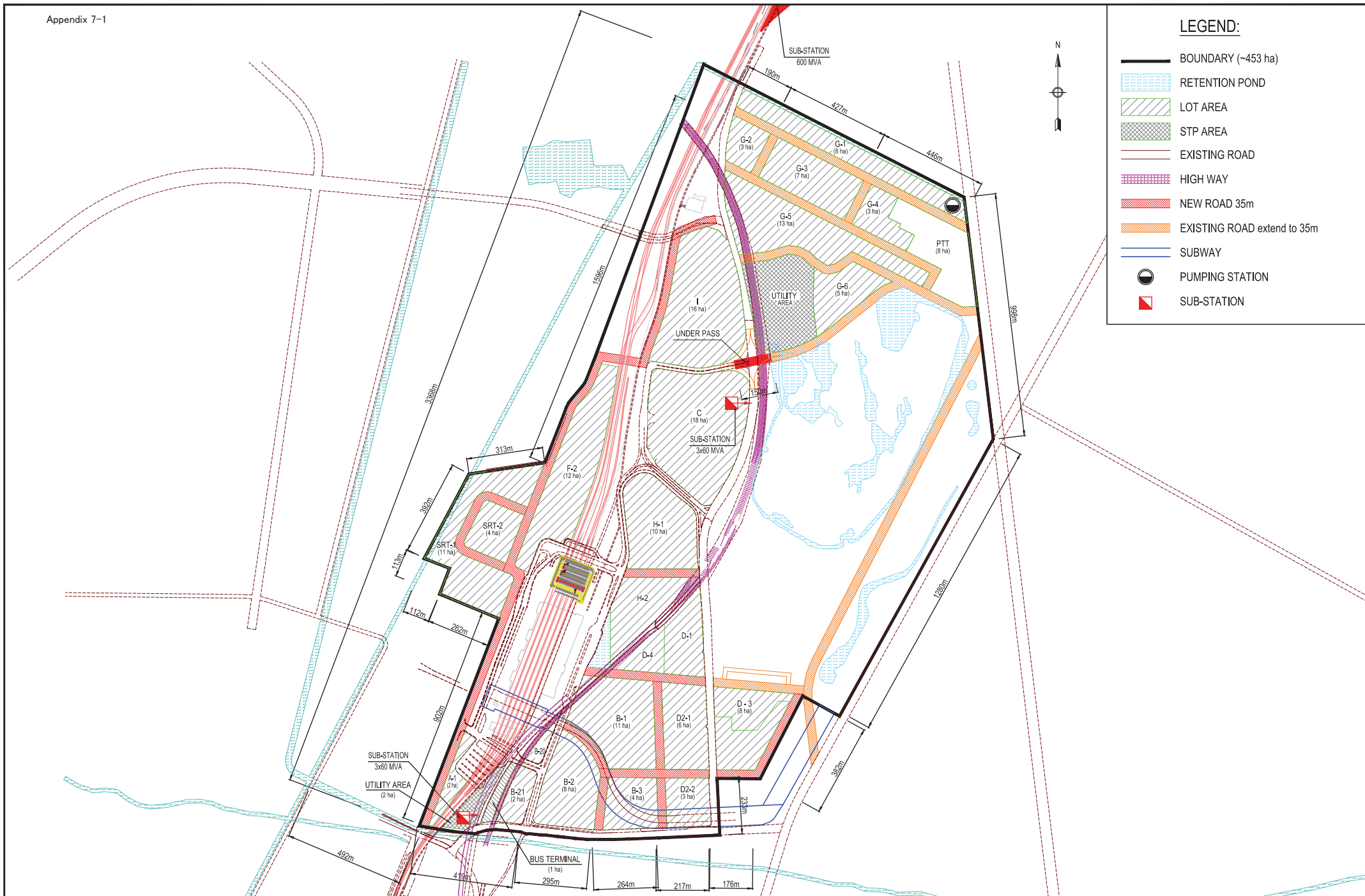


DRAWING NO.












EX - TELE - 01

DATE :

JULY 17,2017



LEGEND:

-  BOUNDARY (~453 ha)
-  RETENTION POND
-  LOT AREA
-  STP AREA
-  EXISTING ROAD
-  HIGH WAY
-  NEW ROAD 35m
-  EXISTING ROAD extend to 35m
-  SUBWAY
-  PUMPING STATION
-  SUB-STATION

JICA SERVEY TEAM

Data Collection Survey on
Urban Redevelopment in Bang Sue Area

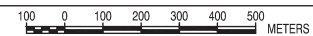
SECTOR :

GENERAL

DRAWING TITLE :

LOT LAYOUT PLAN

SCALE :



DRAWING NO.

GN - 01

DATE:

July 17, 2017

NO.	SECTOR	DRAWING TITLE	DRAWING NO.
1.	EXISTING GAS AND OIL PIPE WORK	EXISTING PLAN OF GAS AND OIL PIPE	EX - GOP - 01
2.	EXISTING POWER SUPPLY WORK	EXISTING PLAN OF POWER SUPPLY	EX - PS - 01
3.	EXISTING ROAD WORK	EXISTING PLAN OF ROAD	EX - RD - 01
4.	EXISTING WATER SUPPLY WORK	EXISTING PLAN OF WATER SUPPLY	EX - WS - 01
5.	EXISTING DRAINAGE WORK	EXISTING PLAN OF DRAINAGE	EX - DR - 01
6.	EXISTING TELECOMMUNICATION WORK	EXISTING PLAN OF TELECOMMUNICATION	EX - TELE - 01
7.	GENERAL	LOT LAYOUT PLAN	GN - 01
8.	ROAD WORK	PLAN OF ROAD	GN - RD - 01
9.	ROAD WORK	TYPICAL CROSS SECTION OF ROAD 35 M.	GN - RD - 02
10.	ROAD WORK	PLAN OF UNDERGROUND PASSAGE AND SKY WALK	GN - RD - 03
11.	WATER SUPPLY WORK	PLAN OF WATER SUPPLY	GN - WS - 01
12.	DRAINAGE WORK	PLAN OF DRAINAGE	GN - DR - 01
13.	SEWERAGE WORK	PLAN OF SEWER	GN - SW - 01
14.	POWER SUPPLY WORK	PLAN OF POWER SUPPLY	GN - PS - 01

JICA SURVEY TEAM

Data Collection Survey on
Urban Redevelopment in Bang Sue Area

SECTOR :

LIST OF DRAWINGS

DRAWING NO.

DRAWING TITLE :

SCALE :

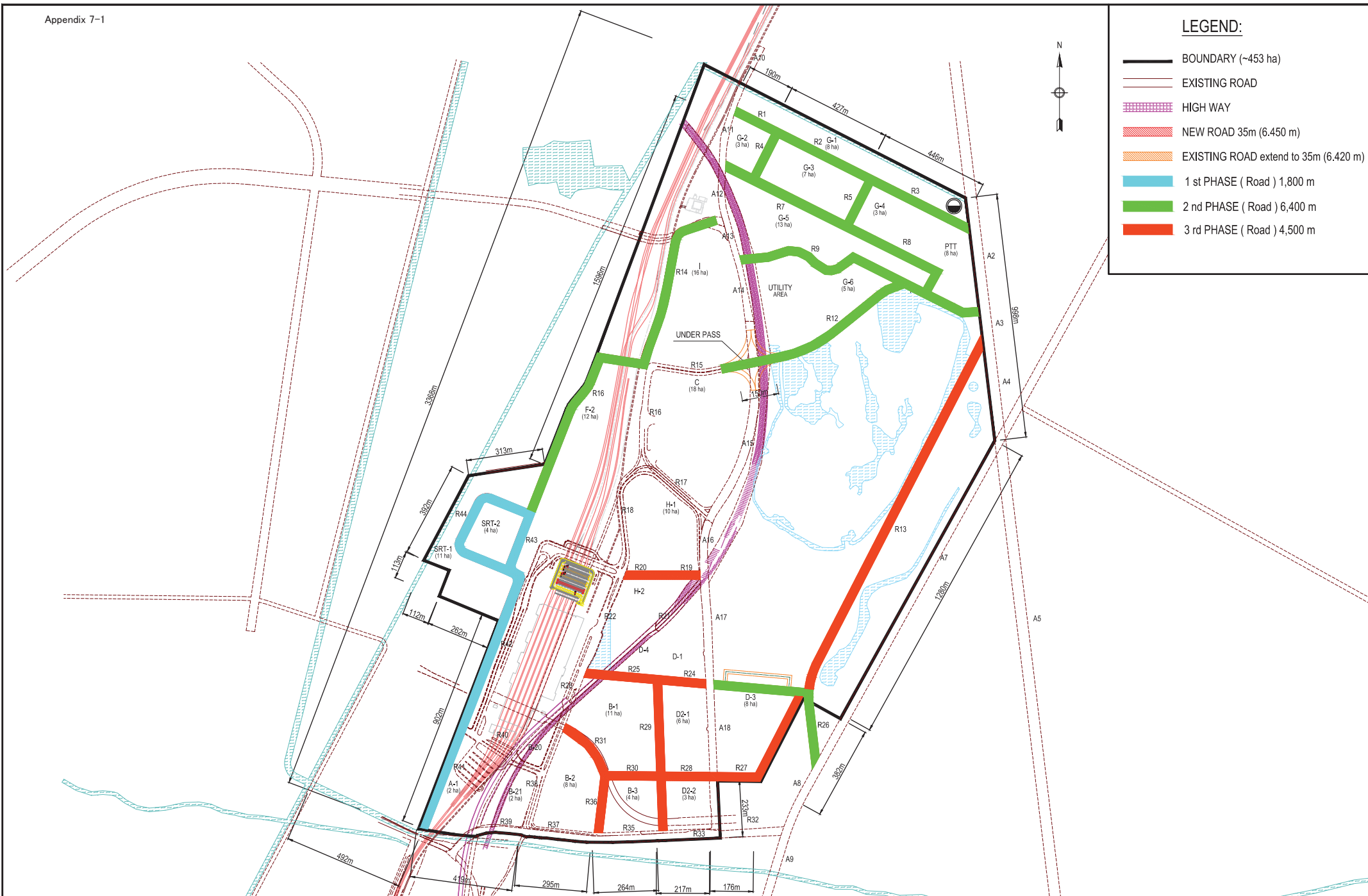

 100 0 100 200 300 400 500 METERS

DATE: July 17, 2017



LEGEND:

- BOUNDARY (~453 ha)
- EXISTING ROAD
- HIGH WAY
- NEW ROAD 35m (6.450 m)
- EXISTING ROAD extend to 35m (6.420 m)
- 1 st PHASE (Road) 1,800 m
- 2 nd PHASE (Road) 6,400 m
- 3 rd PHASE (Road) 4,500 m



JICA SURVEY TEAM

Data Collection Survey on
Urban Redevelopment in Bang Sue Area

SECTOR :

ROAD WORK

DRAWING TITLE :

PLAN OF ROAD

SCALE :



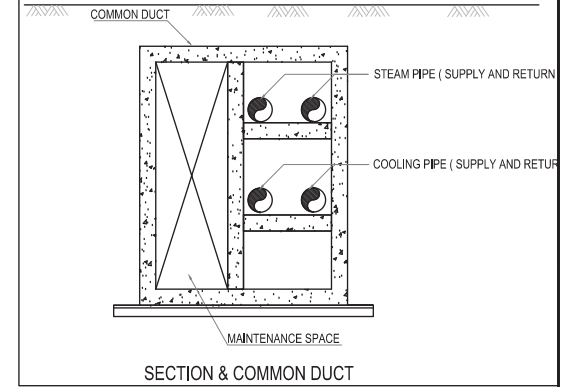
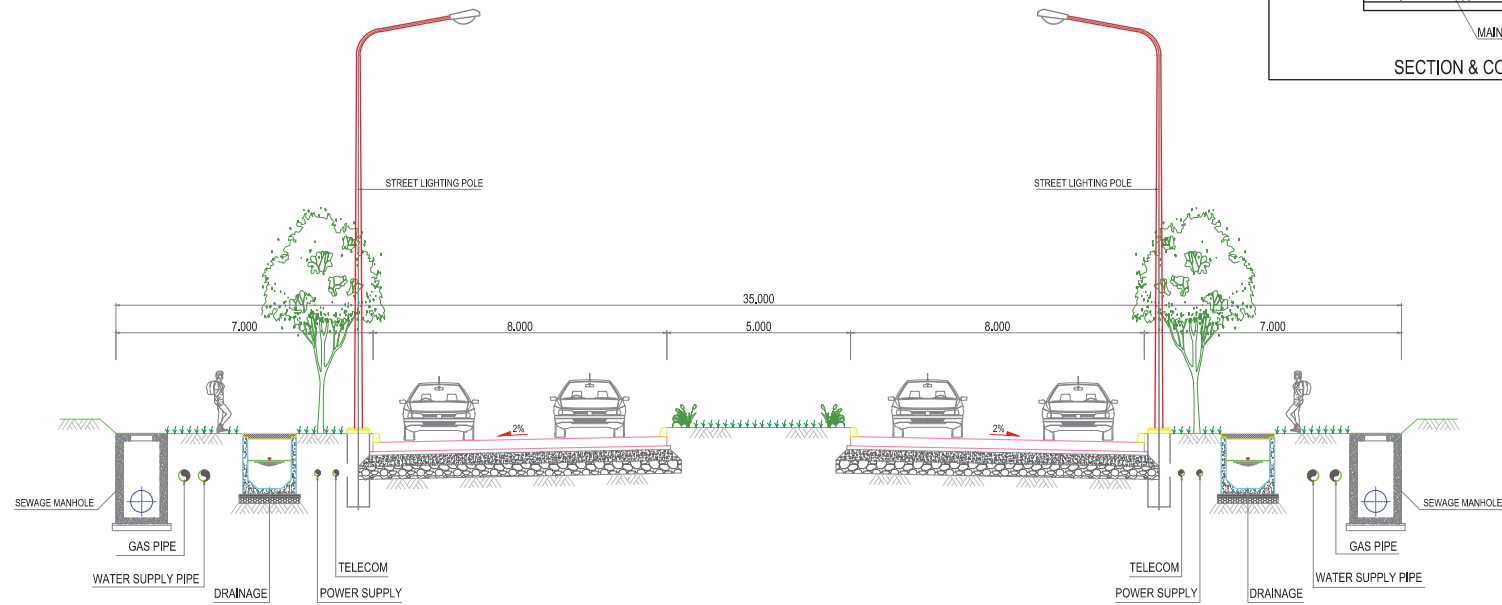
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GN - RD - 01

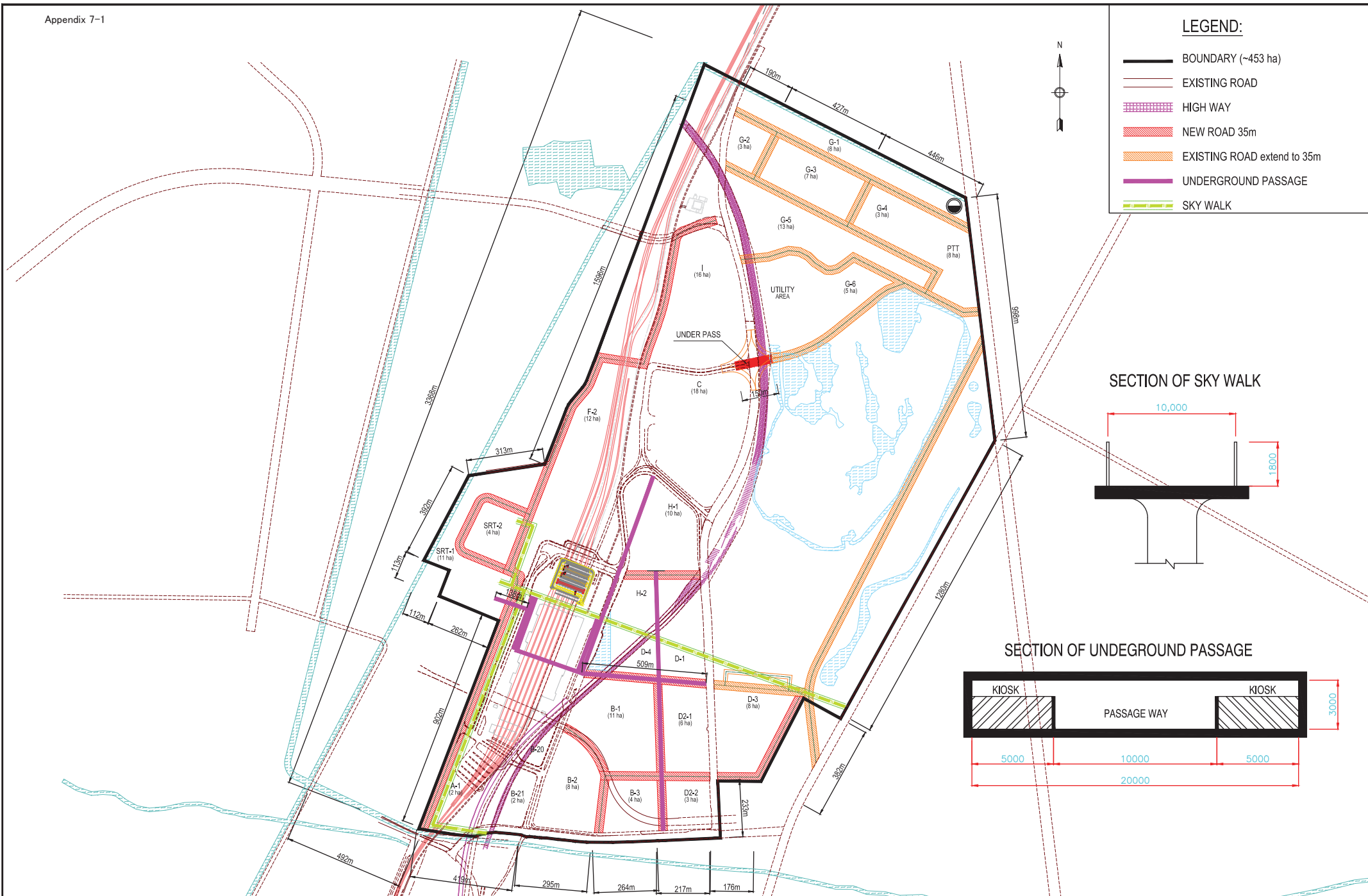
DATE:

July 17, 2017

TYPICAL CROSS SECTION OF ROAD 35m



JICA SERVEY TEAM Data Collection Survey on Urban Redevelopment in Bang Sue Area	SECTOR :	ROAD WORK	DRAWING NO.
	DRAWING TITLE :	TYPICAL CROSS SECTION OF ROAD 35m	GN - RD - 02
	SCALE :	0 1 2 3 4 5 METERS	DATE:
			July 17, 2017

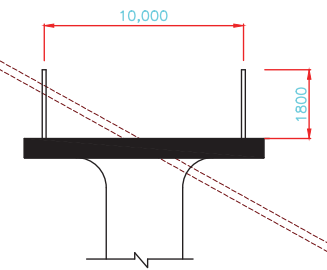


LEGEND:

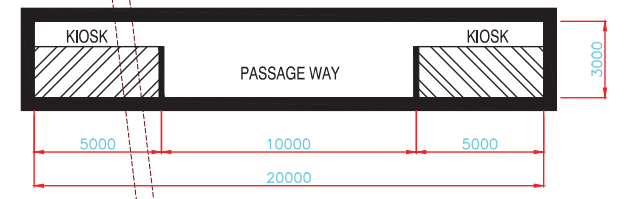
- BOUNDARY (~453 ha)
- EXISTING ROAD
- HIGH WAY
- NEW ROAD 35m
- EXISTING ROAD extend to 35m
- UNDERGROUND PASSAGE
- SKY WALK



SECTION OF SKY WALK



SECTION OF UNDEGROUND PASSAGE



JICA SERVEY TEAM

Data Collection Survey on
Urban Redevelopment in Bang Sue Area

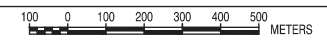
SECTOR :

ROAD WORK

DRAWING TITLE :

PLAN OF UNDERGROUND PASSAGE AND SKY WALK

SCALE :

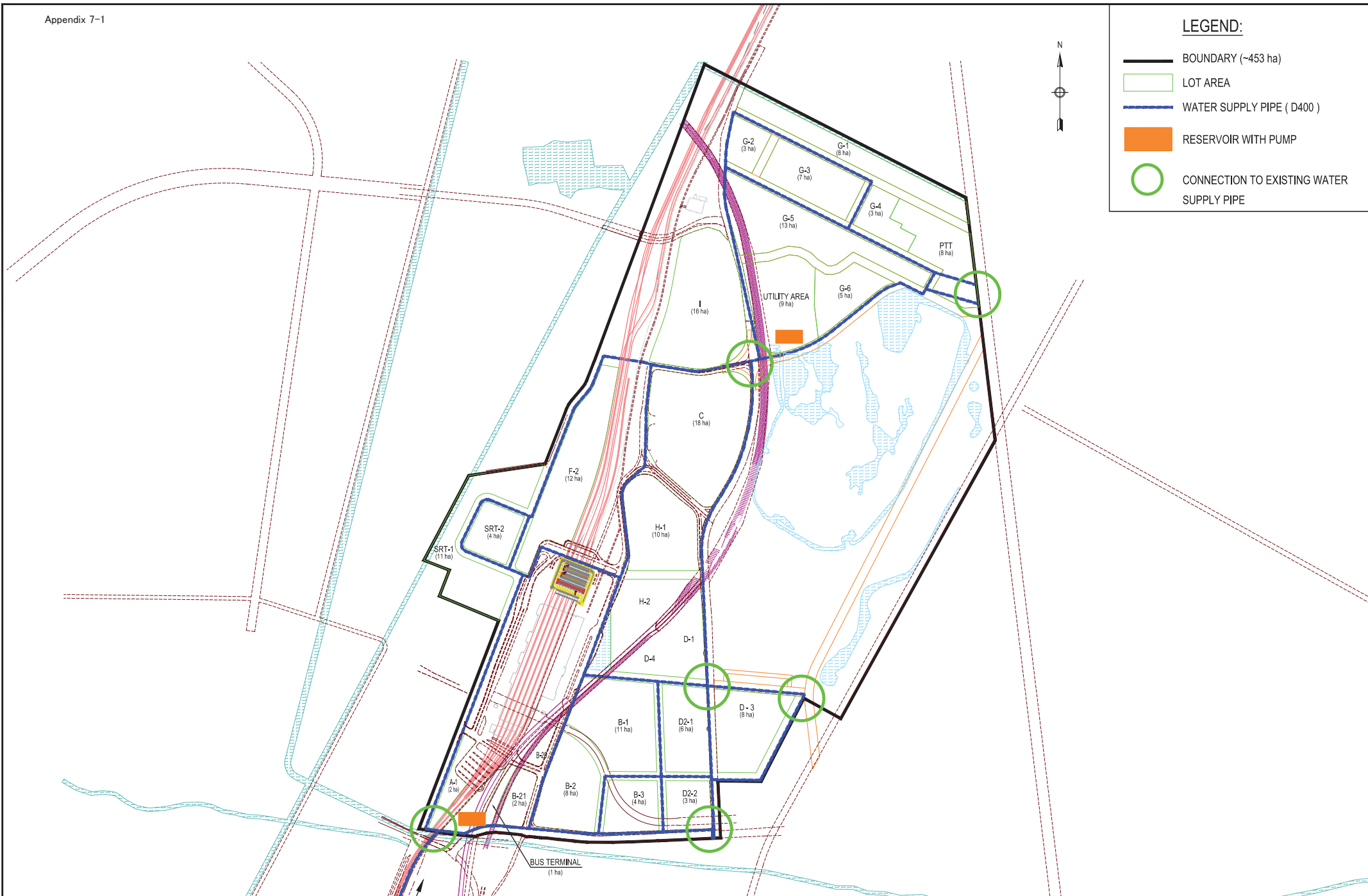


DRAWING NO.






GN - RD - 03

DATE:

July 19, 2017



LEGEND:

-  BOUNDARY (~453 ha)
-  LOT AREA
-  WATER SUPPLY PIPE (D400)
-  RESERVOIR WITH PUMP
-  CONNECTION TO EXISTING WATER SUPPLY PIPE

JICA SURVEY TEAM

Data Collection Survey on
Urban Redevelopment in Bang Sue Area

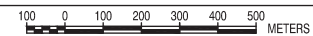
SECTOR :

WATER SUPPLY WORK

DRAWING TITLE :

PLAN OF WATER SUPPLY

SCALE :

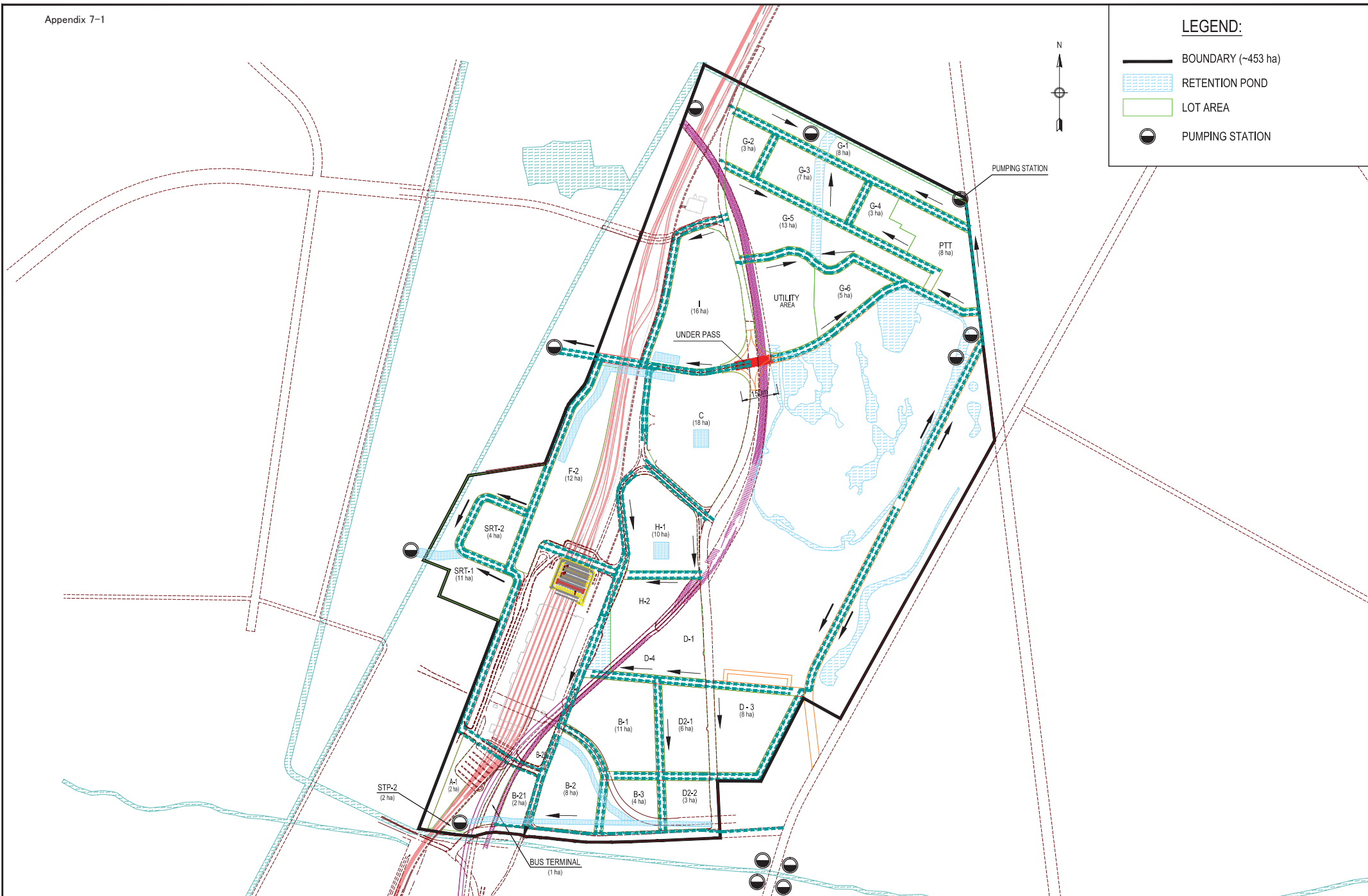


DRAWING NO.





GN - WS - 01

DATE:

July 17, 2017



LEGEND:

-  BOUNDARY (~453 ha)
-  RETENTION POND
-  LOT AREA
-  PUMPING STATION

JICA SURVEY TEAM

Data Collection Survey on
Urban Redevelopment in Bang Sue Area

SECTOR :

DRAINAGE WORK

DRAWING TITLE :

PLAN OF DRAINAGE

SCALE :

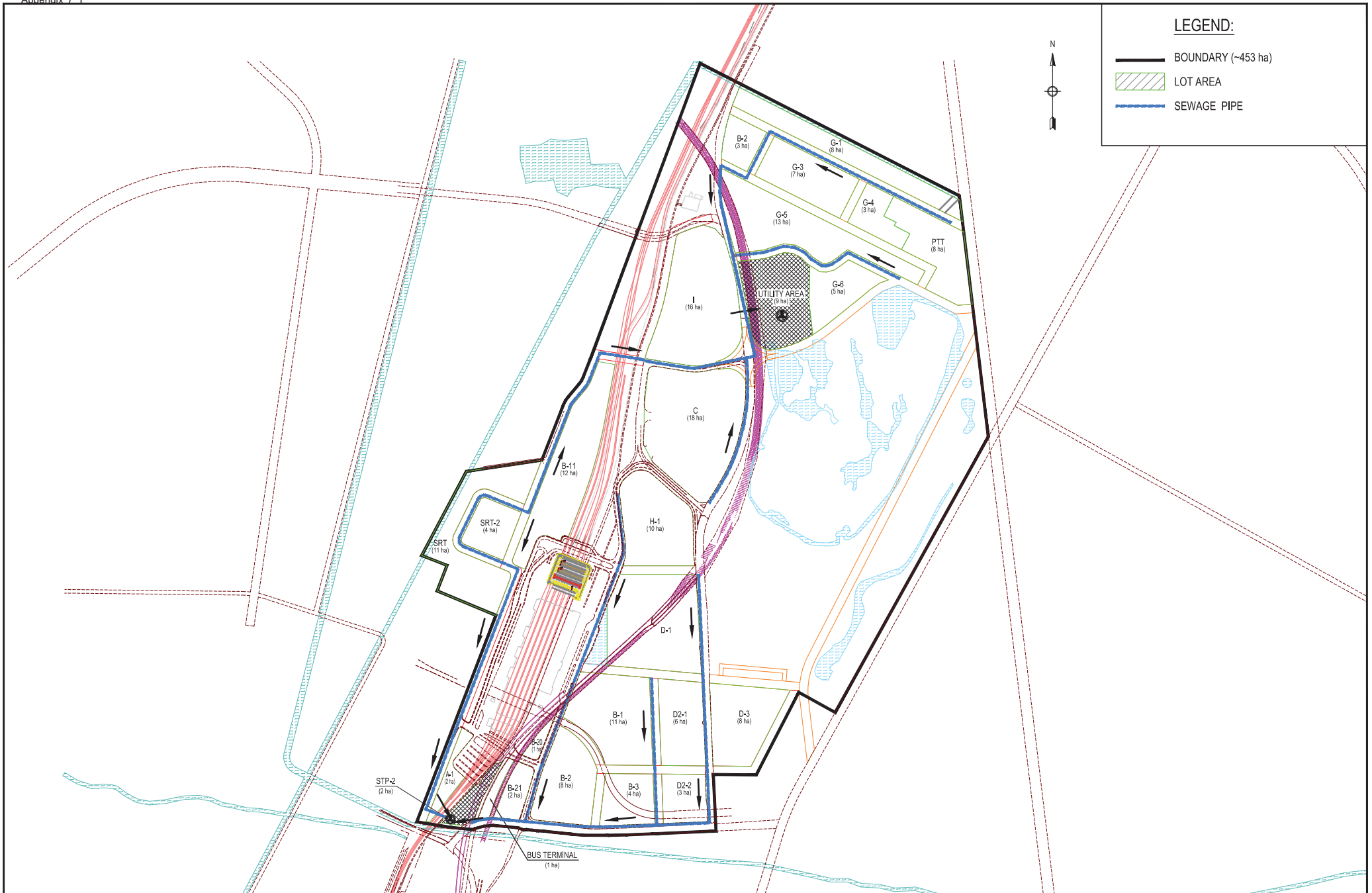



DRAWING NO.

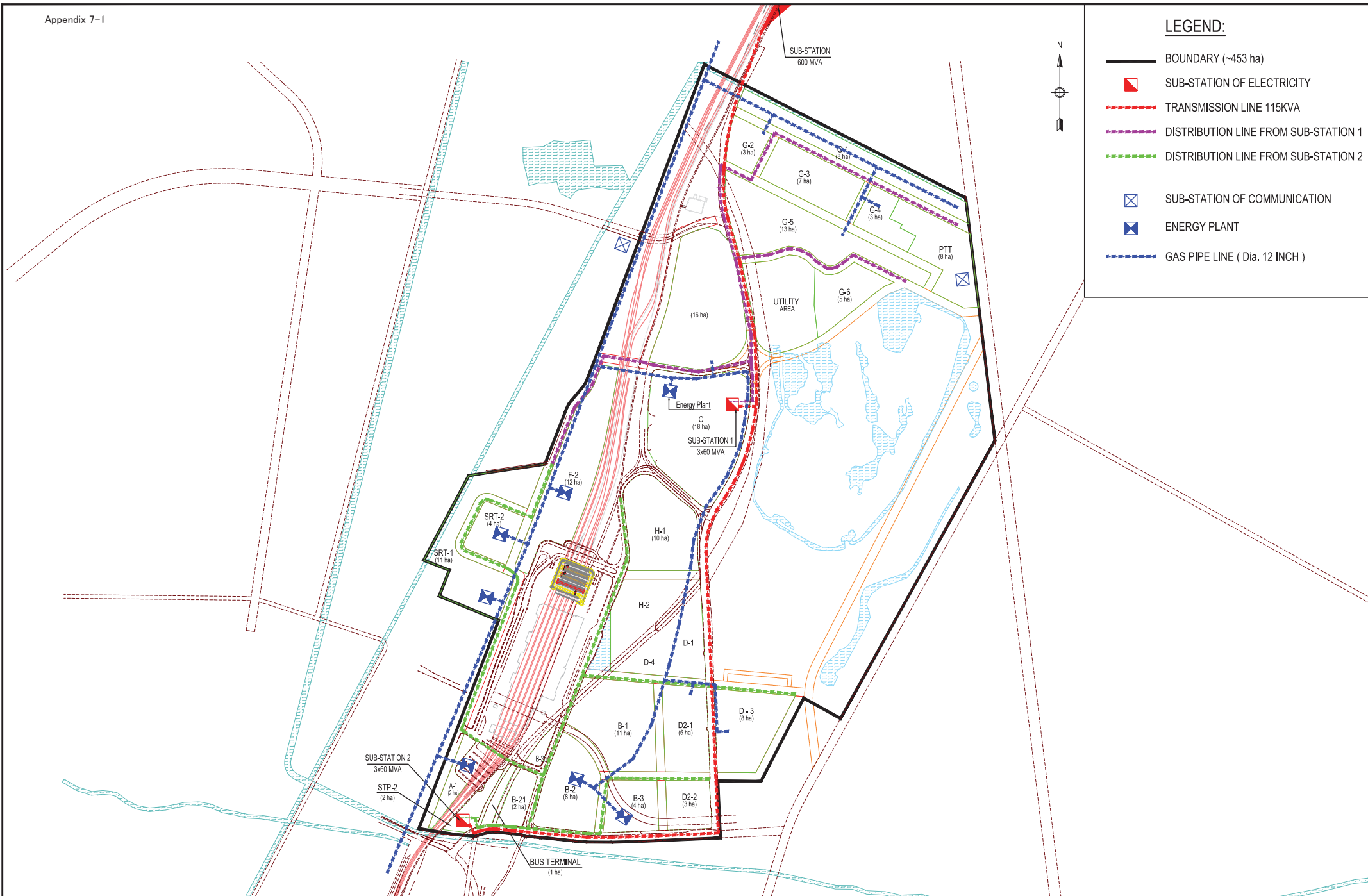
GN - DR - 01

DATE:

July 17, 2017



<p>JICA SERVEY TEAM</p>	<p>SECTOR : SEWERAGE WORK</p>	<p>DRAWING NO. GN - SW - 01</p>
<p>Data Collection Survey on Urban Redevelopment in Bang Sue Area</p>	<p>DRAWING TITLE : PLAN OF SEWER</p> <p>SCALE :  METERS</p>	<p>DATE: July 17, 2017</p>



LEGEND:

- BOUNDARY (~453 ha)
- ▣ SUB-STATION OF ELECTRICITY
- TRANSMISSION LINE 115KV
- DISTRIBUTION LINE FROM SUB-STATION 1
- DISTRIBUTION LINE FROM SUB-STATION 2
- ⊠ SUB-STATION OF COMMUNICATION
- ⊠ ENERGY PLANT
- GAS PIPE LINE (Dia. 12 INCH)



JICA SURVEY TEAM

Data Collection Survey on
Urban Redevelopment in Bang Sue Area

SECTOR :

POWER SUPPLY WORK

DRAWING TITLE :

PLAN OF POWER SUPPLY

SCALE :



DRAWING NO.

GN - PS - 01

DATE:

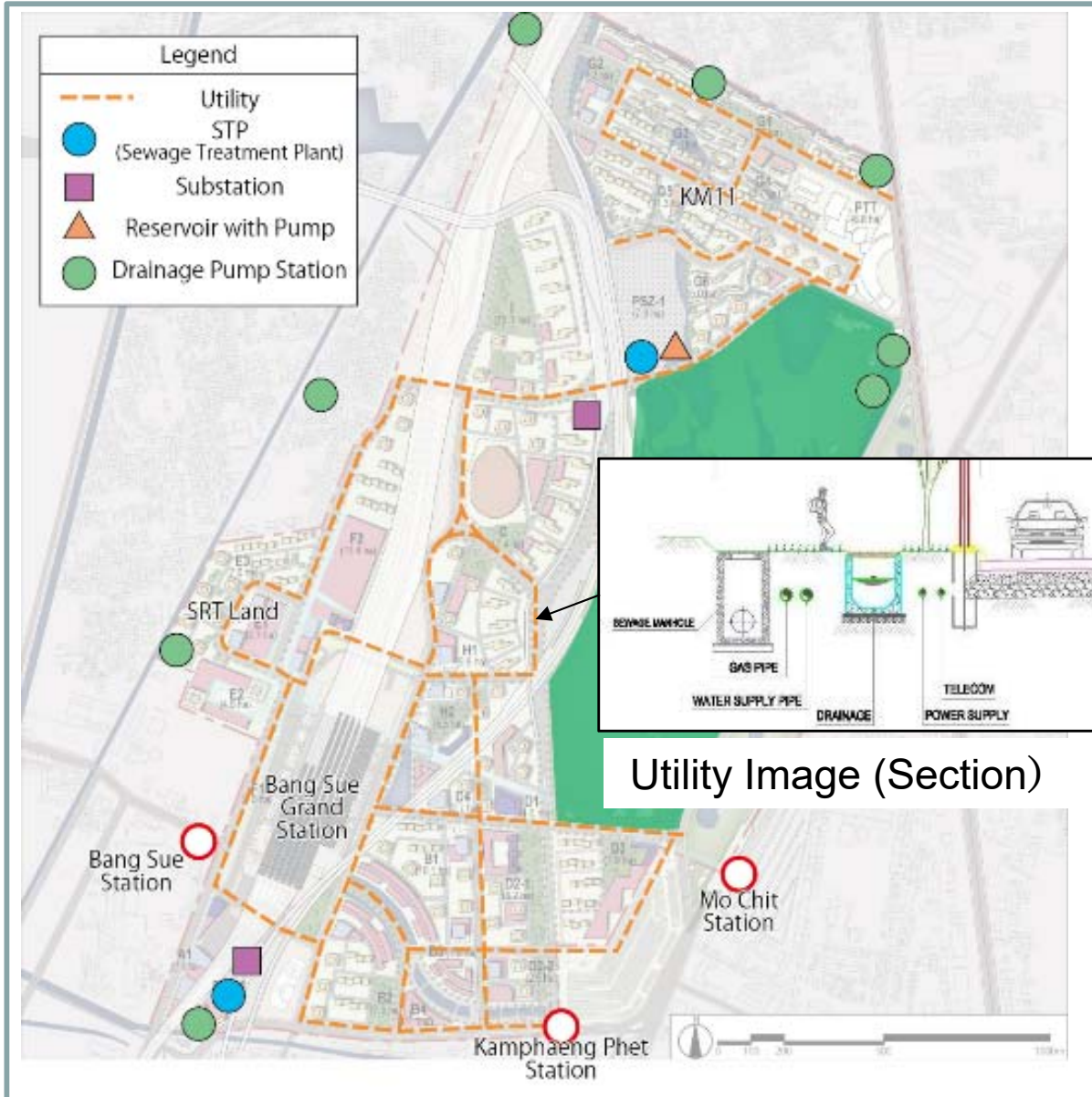
July 17, 2017

Appendix 7-2

Facility Plan

Development Plan

(1) Urban Infrastructure



[Basic Policy]

Each block is planned with 250m width, and infrastructure such as utility is planned under the road. The concept of this area is “Energy Saving” and “Disaster Prevention”

1. Stable Power Supply

Substation (115/24kV) is planned at 2 locations. For emergency cases, loop system of 24kV cable is adopted.

2. Stable Water Supply

By installing water reservoir, water supply system becomes stable.

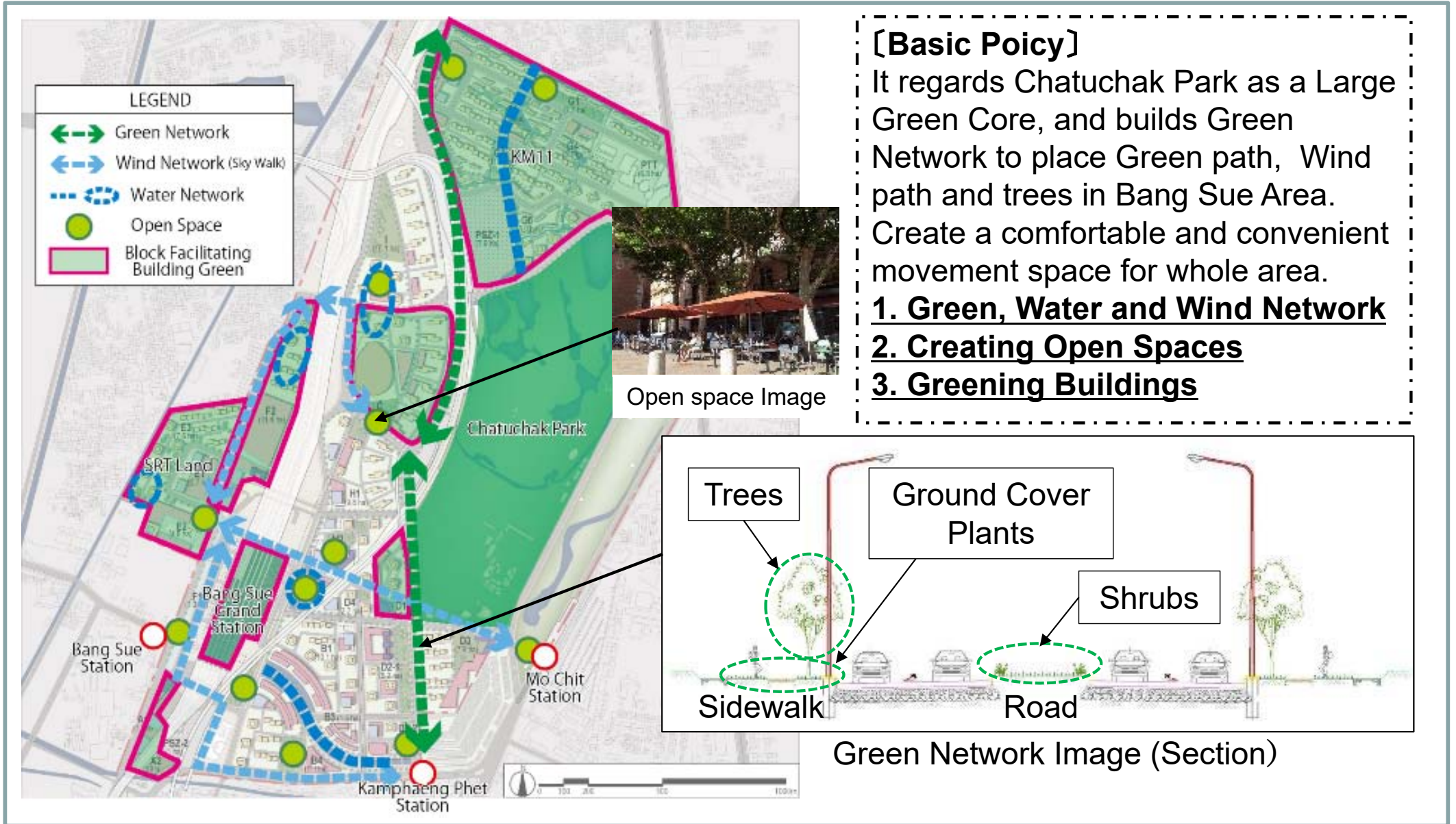
3. Advanced Processing of Waste Water Treatment

By sewerage of separated system, it is possible to prevent untreated water from discharging to outside.

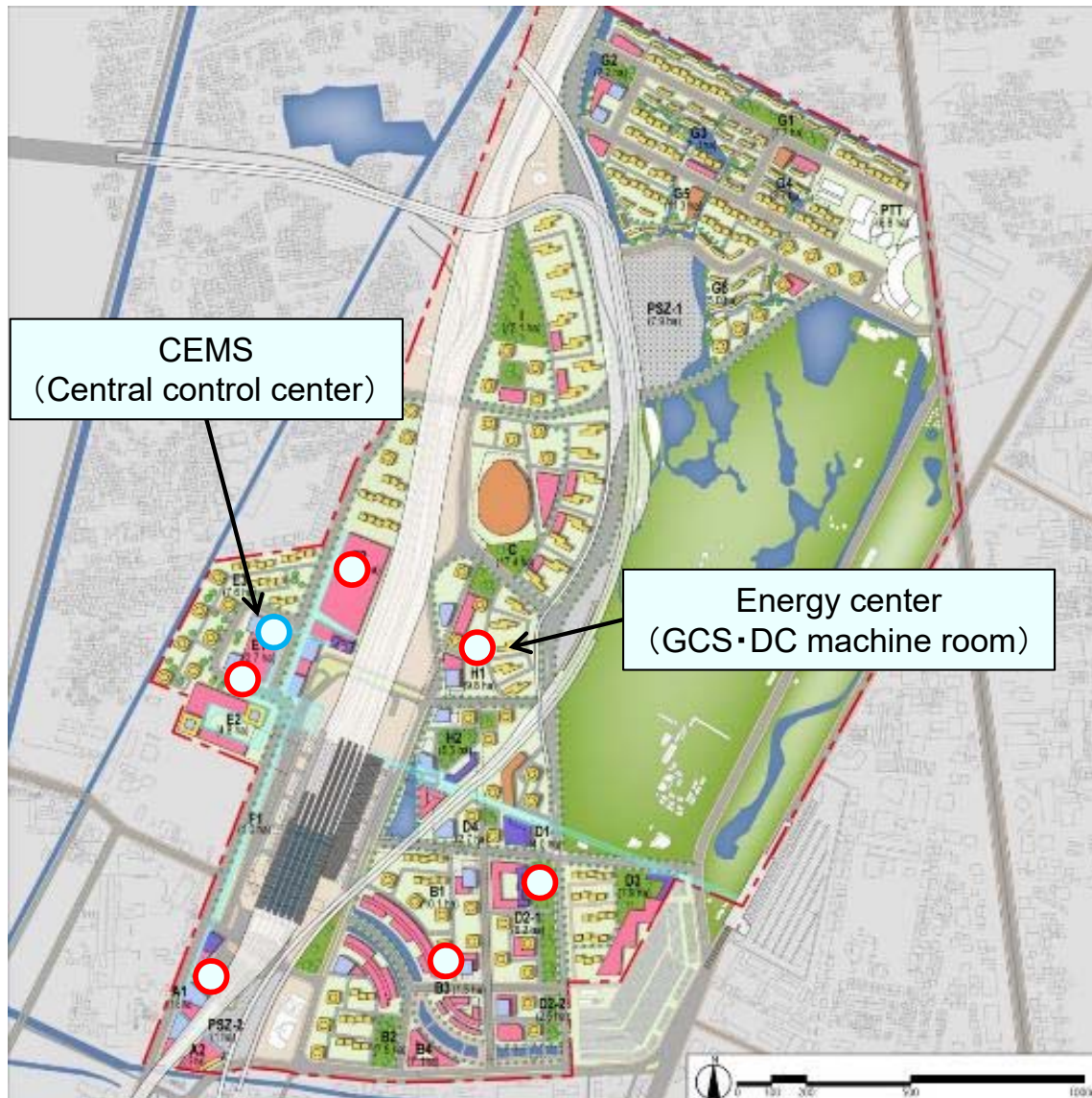
4. Energy Saving (Co-generation)

By utilizing gas, Co-generation system is adopted.

(2) Green Network



(3) Environmental Protection



[Basic Policy]

Energy efficiency, optimization of energy consumption and balance of supply and demand are realized as district level.

1. Gas Cogeneration System(GCS)· District cooling(DC)

GCS and DC promote Energy efficiency in whole Bang Sue Area.

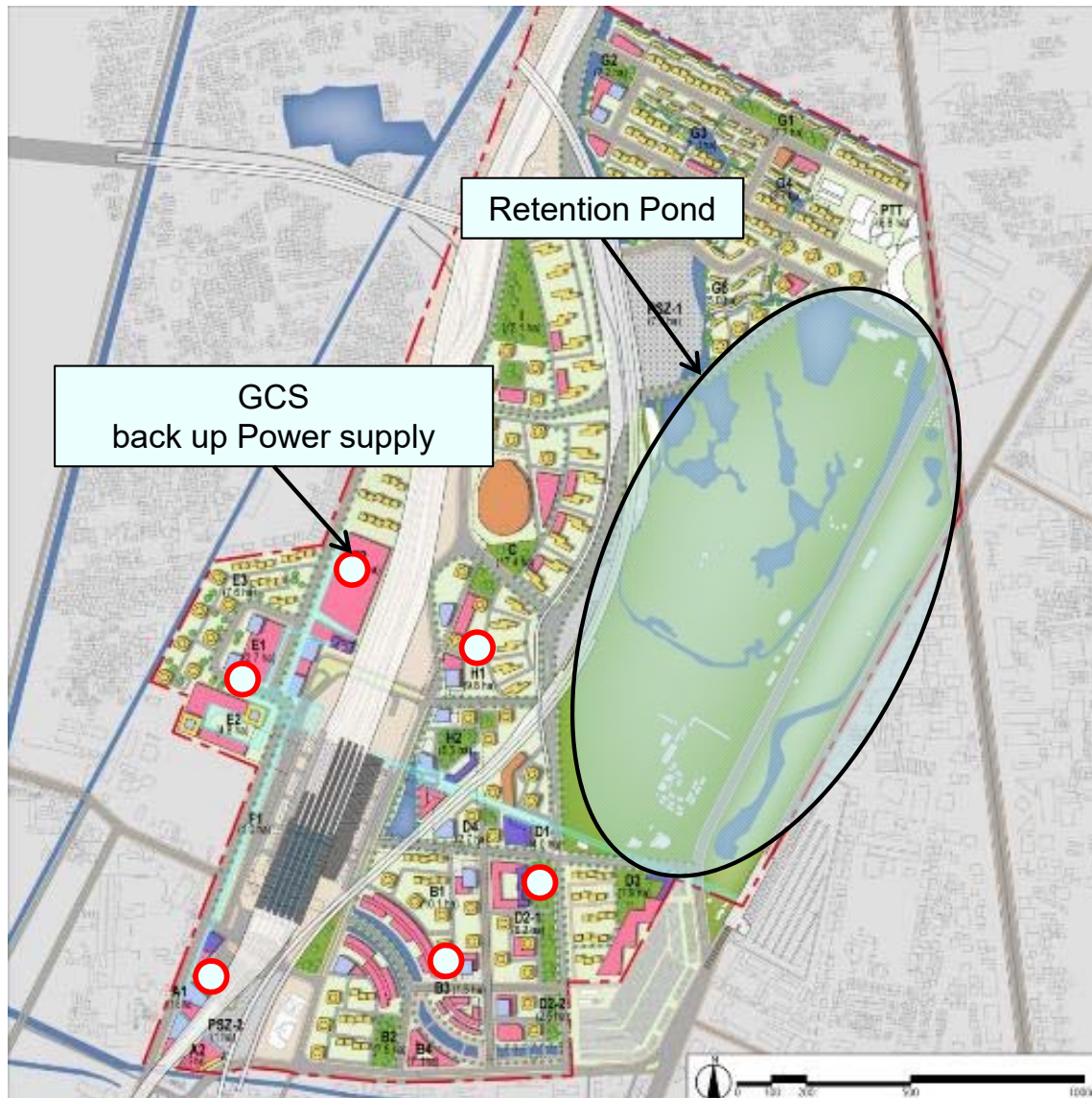
2. CEMS(Community Energy Management System)

Energy management of CEMS realizes optimization of consumption and balance of supply and demand.

3. ESP(Energy Service Provider)

Equipment(GCS, DC, CEMS) operation of ESP promotes Energy efficiency in whole Bang Sue Area.

(4) Disaster Prevention and BCP



[Basic Policy]

Implement measures against flood damage .

1.Retention Pond

The rainfall probability of 10 years is set as the peak time and the rainfall amount of 6 hours is stored.

2.Building raising and Inundation Prevention

Take measures against flooding in the entrance height of the building and the opening.

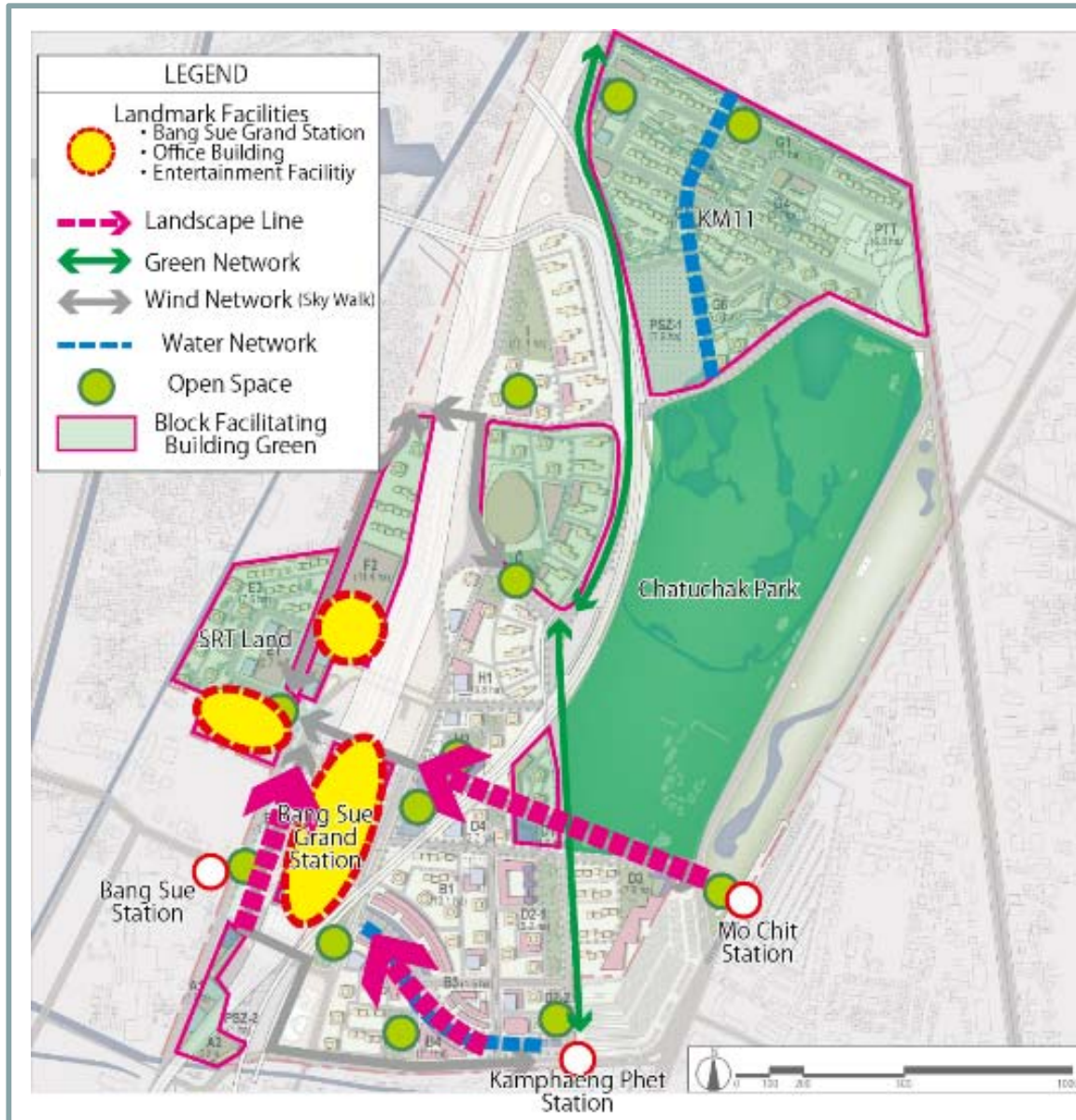
3. Back Up Power Supply

Utilize GCS for backups on power failure.

4. Hazard Map, Shelter, Disaster Counter Measure Head Quarter

Establish BCP and disaster prevention system with in Bang Sue Area.

(5) Landscape Creation

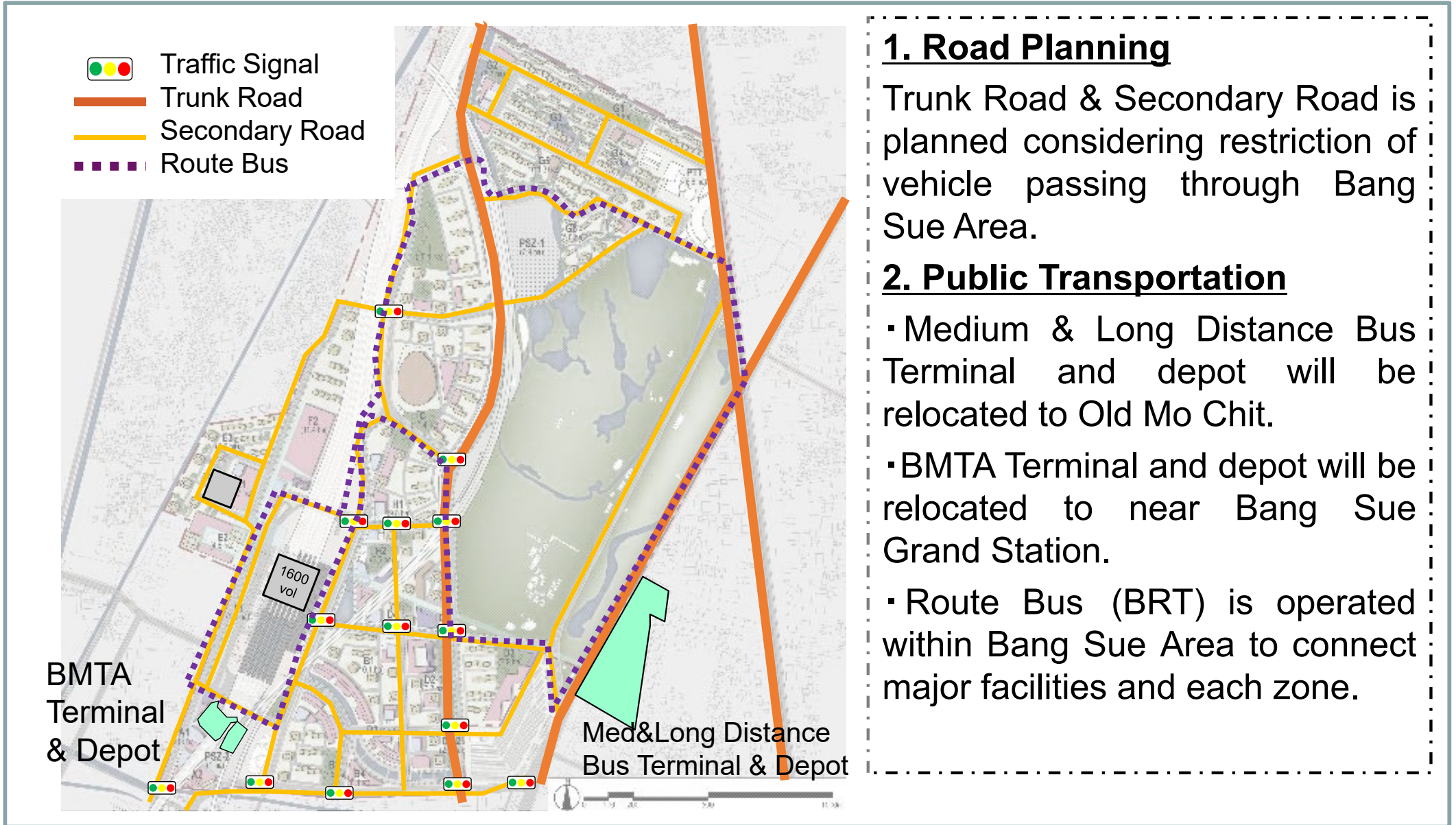


[Basic Policy]

Create new Bang Sue Landmark centered upon Bang Sue Grand Station and considering for the landscape of whole area.

1. Forming Landmark
2. Considering for Building Color, Sign, Advertising
3. Open Space and Walking Space

(6) Transport Network



(7) Upgrading Facilities



 Skywalk  Underground Path



Skywalk



Under Path in Fukuoka



ITS system : VMS at Nana



ITS system : Information on Parking Availability

1. Skywalk

Based on TOD, Skywalk shall be built to connect surrounding facilities with Bang Sue Grand Station.

2. Underground Path

The Underground Path provides a comfortable walking space and connects directly with the developed building to increase the value of the facility.

3. ITS

ITS technology realizes a smooth traffic flow by optimizing traffic volume.

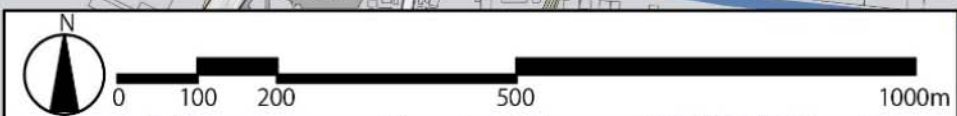
4. Data center

Data center attracts and activates IT industry in Bang Sue Area.

Appendix 7-3

Development Images

LEGEND	
	Office
	Hotel
	Retail
	Residential
	Public Facility
	Office & Residential
	Skywalk
	Underground Path
	Park / Greenspace
	Public Service Zone



Development Image (Bang Sue Area)



Skywalk connects Office Towers and stations (①③)

Two stations(①②) are connected each other through Shopping Mall and water path

Appendix 8–1

Fund Allocation Plan (details)

(1) Fundraising (Overall Funding Requirement by Organization)**(Billion Baht)**

Layer	Layer	Item	Unit	Unit Price [K Baht]	Short Term			Midium Term			Long Term			Total
					Volume	Price	Sub Total	Volume	Price	Sub Total	Volume	Price	Sub Total	
5	Retail, Office, Residence, Hotel		m ²	51.0	681,000	34,731	34,731	2,249,900	114,745	114,745	2,675,800	136,466	136,466	285,942
	MICE	Arena	m ²	68.0		0	50,000	3,400				0		
		Exhibition Center	m ²	17.0		0	50,000	850				0		14,450
		Education and Medical Center	m ²	51.0		0	100,000	5,100		14,450		0		0
	SRT Office / Civic Center		m ²	51.0		0		100,000	5,100					0
4	TOD	Underpass	m ²	101.8		0		3,000	305					0
		Pedestrian	m ²	17.0	45,000	763			0					0
		Underground passage	m ²	33.9	3,600	122		24,000	814		2,815	36,000	1,220	12,577
		ITS	Set	407,094.0		0		1	407					0
		Feeder	unit	473,200.0		0		0	0			24	11,357	
		Data center	m ²	128.9		0		10,000	1,289					0
	Smart-City	Gas Pipe	m	1.7	3,600	6		11,380	19			10,420	18	
		Cooling Pipe	m	1.7	3,600	6		11,380	19			10,420	18	
		GCS, DC	set	2,161,000.0	32%	692		23%	497		1,712	45%	972	1,078
		Common Duct	m	33.9	130	4		620	21			250	8	
		CEMS	set	1,155,401.0		0		1	1,155				0	
		Solar power generation	Unit	61,742.6		0			0			1	62	
3	Bus	BRT Civil	Set	15,869,960.0	0	0		1	15,870			0	0	
		BRT Vehicle	unit	473,200.0	0	0	271	18	8,518		30,428	0	0	30,700
		Medium/Long distance Bus	m ²	17.0	16,000	271		356,175	6,041			0	0	
	Road	Underground parking	m ²	33.9	10,000	339			0					0
		Road facility	Unit	33,924.5	8	271	611	6	204		204			814
2	Green/Plantation	m ²	0.3	10,000	3	3	200,000	68	68	400,000	136	136	207	
	Retention Pond	ha	3,392.5	1	3	3	4	12	12	6	19	19	34	
	Generator	MVA	1.0	1,000,000	1,020	1,020		0	0		0	0	1,020	
	Embankment	m ³	0.4	100,000	41	41	600,000	246	246	700,000	287	287	574	
	Major Road	m	61.1	1,800	110	115	5,690	348	362	5,210	318	332	808	
	Street lighting	No.	25.4	180	5		569	14		521	13			
	Concrete pipe	m	6.8	3,600	24		11,380	77		10,420	71			
	Manhole	No.	33.9	90	3		285	10		261	9			
	Sewage treatment	m ³	10.2	24,000	245	462	24,000	245	785		0		433	
	Drainage	m	33.9	3,600	122		11,380	386		10,420	353			
	Pumping Station	No.	33,925.0	2	68		2	68			0			
	Water Plant	m ³	10.2	30,000	306		30,000	306			0			
	Reservoir	m ³	4.4	5,000	22	352	5,000	22	405		0		71	
	Water Pipe	m	6.8	3,600	24		11,380	77		10,420	71			
	Transmission cable	m	101.8	5,000	509			0			0			
	Substation	No.	339,245.0	1	339	892	1	339	474		0		118	
	RMU	No.	1,696.0	4	7		11	19		7	12			
	24kcable	m	6.8	5,400	37		17,070	116		15,630	106			
	Cable conduit	m	0.3	10,800	4	6	34,140	12	17	31,260	11		16	
Optic fiber cable	m	0.3	5,400	2		17,070	6		15,630	5				
							40,100		166,724		151,531	358,355		

Appendix 10—1

Outline of “Act on Special Measures concerning Urban
Regeneration”

Basic Framework of Measures toward Urban Renaissance

The Urban Renaissance Headquarters (Head : Prime Minister)

Basic Policies of Urban Renaissance

Urban Renaissance by utilizing Private Sector Initiative

Priority Urban Redevelopment Areas [53 Area 8,592ha]
(Designated by cabinet ordinance)

Enhancement of International Competitiveness of a City

Special Area [13 Area 4,011ha]
(Designated by cabinet ordinance)

Area Development Policy [by Headquarters]

Supporting Measures

Special District for Urban Renaissance
Relaxation of FAR
Buildings above roads
(81 Area)

Urban Planning Proposal System

Acceleration of Approval on Urban
Redevelopment Projects

Approved by MLIT
Minister

Private project for
Urban
Redevelopment
(108 plans approved)

Financial
Assistance

Taxation Exception

Safety Ensuring Plan for Urban Renaissance
(18 Plans)

Urban Renaissance by Public Facility development in PPP Scheme

Urban Redevelopment Plan
(Planned by Municipalities)

Planned for 2,819 areas as of August 2017

Financial Assistance (Grant)
by the Government

The grant for public infrastructure development
Budget for FY 2017 : 80 billion USD

Legal System for District Vitalization

Area Management Promotion Agreement
Special Exception for Road Occupancy

Urban Redevelopment Plan by
Private Sector

Approved by MLIT
Minister (42 plans approved)

Financial Support

Major Supporting Measures toward Urban Renaissance

Support in Regal System

■ Special District for Urban Renaissance

Flexible urban redevelopment plan including relaxation of Floor Area Ratio (FAR), to contribute urban renaissance and Intensive Land Use in the area of the special district.



Nihonbashi (Tokyo)

FAR: 8:1, 7:1% → 19.9:1% etc.

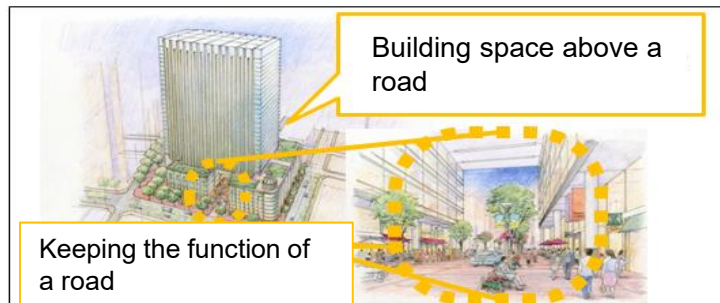


Osaka Station North District (Osaka)

FAR: 8:1% → 16:1% etc.

■ Realization for Utilizing a Space above Roads

To state it (utilization of a space above roads) in the urban development plan for a Special District for Urban Renaissance, it can be implemented without replacement or closing a road.



■ Other Supports in Legal System

- Proposal of urban planning by urban redevelopment project implementers
- Acceleration of approval process (within 3 months, etc.)
- FAR relaxation for public facilities stated in a Safety Ensuring Plan
- Relaxation of regulation to promote utilizing unused energy (Only for special areas)

Financial Assistance (Grant)

■ Project for Enhancement of International Competitiveness of a City <Only for special areas>

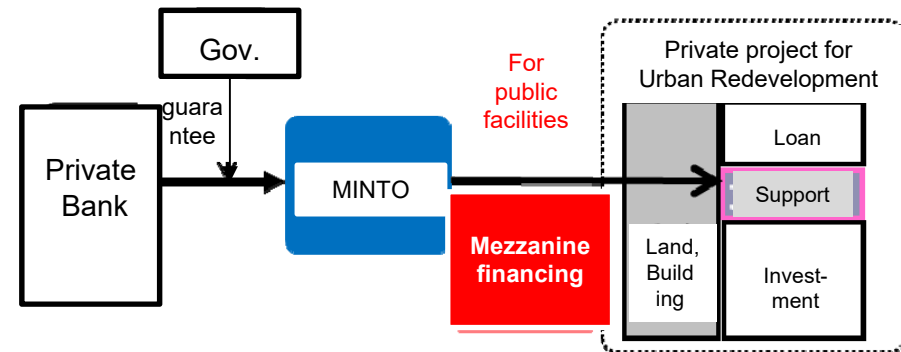
■ Project for Improvement of Environment for International Business and City Sales <Only for special area>

■ Project for Ensuring & Enhancing Urban Safety

Financial Assistance (Financial System)

■ Mezzanine Financing

by Organization for Promoting Urban Development (MINTO)



Taxation Exception

■ Income Tax · Corporate Tax

■ Registration License Tax

■ Property Acquisition Tax

■ Fixed Property Tax · City Planning Tax

Priority Urban Redevelopment Areas As of July 24th, 2015

Special District for Urban Renaissance 77 Areas

Sapporo (4) · Sendai(2) · Tokyo(36) · Yokohama(2) · Hamamatsu(1) · Nagoya(6) · Gifu(1) · Osaka(17) · Takatsuki(1) · Kobe(1) · Hiroshima(3) · Takamatsu(2) · Kita-Kyushu(1)

Approved Private project for Urban Redevelopment 77 Plans

Sapporo(1) · Kawaguchi(1) · Tokyo(38) · Yokohama(5) · Kawasaki(3) · Fujisawa(1) · Sagami-hara(1) · Nogoya(6) · Kyoto(1) · Osaka(10) · Sakai(1) · Toyonaka(2) · Moriguchi(1) · Kobe(1) · Okayama(1) · Hiroshima(2) · Takamatsu(1) · Fukuoka(1)

Project for Enhancement of International Competitiveness of a City 7 Areas

Sapporo(1) · Tokyo(2) · Yokohama(1) · Nagoya(1) · Osaka(1) · Fukuoka(1)

Legend

Priority Urban Redevelopment Area

Special Area

Kyoto City, Muko City, Nagaoka-kyo City. 4 Area 411ha

Gifu City 1 Area 30ha

Kobe City, Amagasaki City, 4 Area 416ha

Okayama City 1 Area 113ha

Hiroshima City, Fukuyama City, 2 Area 84ha

Fukuoka City 2 Area 790ha
Kita-Kyushu City 2 Area 160ha

Central District of Fukuoka City 231ha

Takamatsu City 1 Area 51ha

Naha City
1 Area 11ha

Sapporo City 1 Area 225ha

Central District of Sapporo City 145ha

Sendai City 2 Area 125ha

Saitama City, Kawaguchi City 2 Area 115ha

Tokyo 8 Area 2,903ha

Central District-Water front 1,991ha
Shinjuku Area 220ha
Shibuya Area 139ha
Shinagawa, Tamachi Area 184ha
Ikebukuro Area 143ha

Chiba City, Kashiwa City 4 Area 185ha

Yokohama City 4 Area 286ha
Kawasaki City 3 Area 534ha
Sagami-hara City, Fujisawa City, Atsugi City
3 Area 139ha

Yokohama Central. Waterfront 233ha
Kawasaki 43ha

Shizuoka City, Hamamatsu City 2 Area 91ha

Nagoya City 3 Area 570ha

Central District of Nagoya City 303ha

Osaka City, Sakai City, Moriguchi City, Neyagawa City, Toyonaka City, Takatsuki City 13 Area 1,133ha

Central Business District of Osaka City 209ha, Others 53ha

Projects in Priority Urban Redevelopment Areas [Examples]

Nissay Sapporo Building (Sapporo)

- ◆ Commercial・Office use
- ◆ Directly connected to Sapporo Station Underground passage
- ◆ Rooftop gardening, Outdoor air cooling, Connected to energy supply sharing network
- ◆ Special District for Urban Renaissance (FAR 8:1→10:1)



Ichiban-cho, 3, South Area, (Aoba-ward, Sendai)

- ◆ Commercial・Office use
- ◆ Walking passage, Interior plaza, Rooftop gardening
- ◆ Special District for Urban Renaissance (FAR 6:1→10.5:1)



Tokyo Midtown (Tokyo)

- ◆ Government-owned land was sold and developed by private company
- ◆ Mixed use of Residential, Office, Commercial & Leisure
- ◆ Approved as Private project for Urban Redevelopment
- ◆ Acceleration EIA and other procedure (Project schedule 24months →11months)



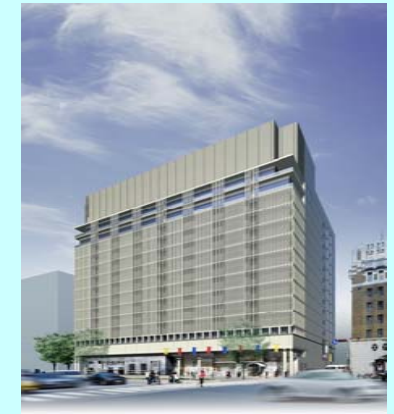
Midland Square (Nagoya)

- ◆ Special District for Urban Renaissance (FAR10:1→14.2:1)
- ◆ Approved as Private project for Urban Redevelopment



Daimaru Shinsaibashi (Osaka)

- ◆ Special District for Urban Renaissance (FAR10:1→13:1)



Mint Kobe (Kobe)

- ◆ Mixed use of Commercial・Office, Cinema complex, Bus terminal, etc.
- ◆ Complementary space for station plaza, free walking passage for public
- ◆ Special District for Urban Renaissance (FAR 8:1→16:1)
- ◆ Approved as Private project for Urban Redevelopment



(Okayama Inter-parks) (Okayama)

- ◆ Development of a public land lot (formerly an elementary school) by a private developer by open bid
- ◆ A combined project including Condominium with fixed-term leasehold, Rental apartment, elder care facility, sports gym, park, etc.



Takamatsu Marugame-machi Shopping District (Takamatsu)

- ◆ Commercial・Community Facilities・Residential
- ◆ Redevelopment project by local redevelopment association for revitalization of the local community
- ◆ Special District for Urban Renaissance (Relaxation of)
- ◆ Approved as Private project for Urban Redevelopment



Tenjin Underground Mall (Fukuoka)

- ◆ Strengthening the function as a transport hub, reducing congestion on ground, shopping facilities for train passengers
- ◆ Approved as Private project for Urban Redevelopment



Naha Asahi-bridge East Area (Naha, Okinawa)

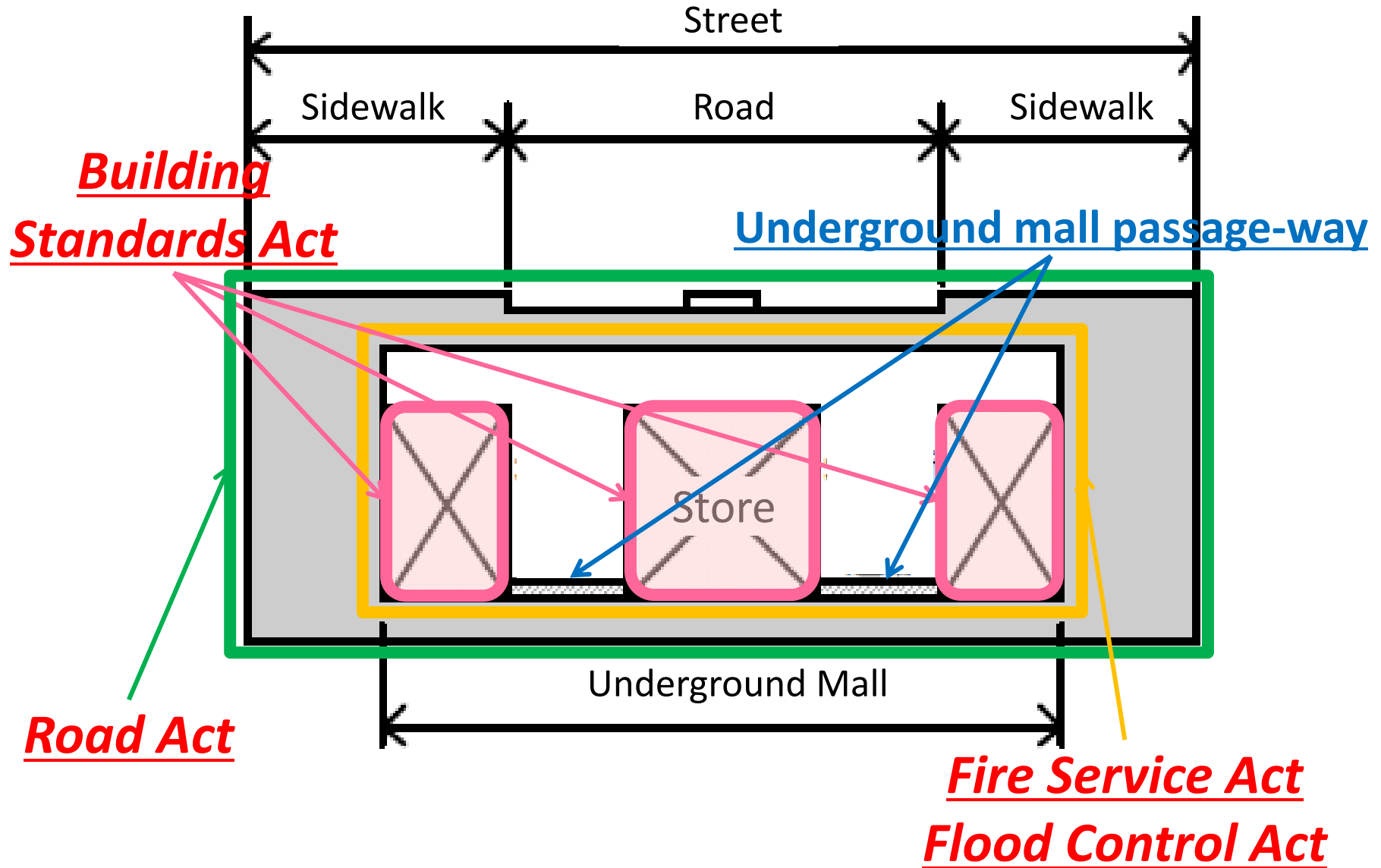
- ◆ Mixed use of Office・Hotel, Residential, Government office・Public hall, Bus terminal, Parking
- ◆ Land use conversion, Intensive land use
- ◆ Pedestrian Deck to connect the concourse of monorail and other buildings to enhance user-friendliness as a transport hub



Appendix 10–2

Outline of Regulations Regarding Underpass Development

Laws concerning underground mall



- A street occupancy permit shall be obtained.
- To obtain the permit, the following requirements shall be met:
 - The structure to be built shall be robust and durable.
 - Structures of the street and other underground facilities occupying part of the street shall not be obstructed.
 - If the structure is to be built under traffic lanes, it shall not affect the road strength. Etc.

Fire Service Act

- Plans for fire protection and other measures shall be formulated.
 - Designation of fire prevention manager.
 - Implementation of drills for firefighting, emergency reporting and evacuation.
 - Inspection and maintenance of equipment used for firefighting and facilities required for firefighting activities such as fire water tanks.
 - Supervision of use or handling of fire.
 - Maintenance and management of structures and equipment necessary for evacuation and fire protection.
- No obstacles to evacuation shall be placed.
 - The mall shall be free of any obstacles to evacuation that could block passage-ways, stairways, escape gates or other facilities required for evacuation or impede fire doors closing.
Etc.

- The following requirements regarding compartments shall be met:
 - At least 2meters of each compartment shall face the underground passage.
 - Flooring or walls of fireproof structure shall be used for partitioning.
 - Walking distance from each part of the room to the exit to street level through the underground passage shall be 30meters or less. Etc.

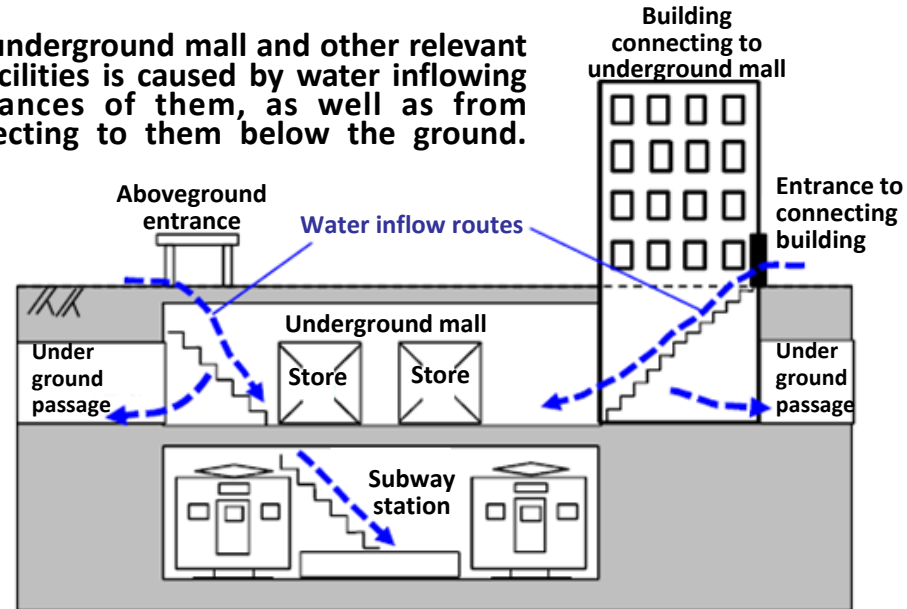
Flood Control Act

- Measures shall be taken to ensure smooth and quick evacuation and prevent inundation in areas that are expected from river flood, high tide or inland water*.
 - Formulation of plans for ensuring smooth and quick evacuation of mall users and implementing required drills to prevent inundation.
 - Hearing of opinions at the stage of plan formulation from the owners and managers of facilities connecting to the underground mall.
 - Establishment of a private flood control team. Etc.

*Inland water : flood due to failure to drain rainwater in public waters

Flood Control in underground mall

Flooding of an underground mall and other relevant underground facilities is caused by water inflowing from the entrances of them, as well as from buildings connecting to them below the ground.



[Illustration of a building connecting to an underground mall and relevant facilities]

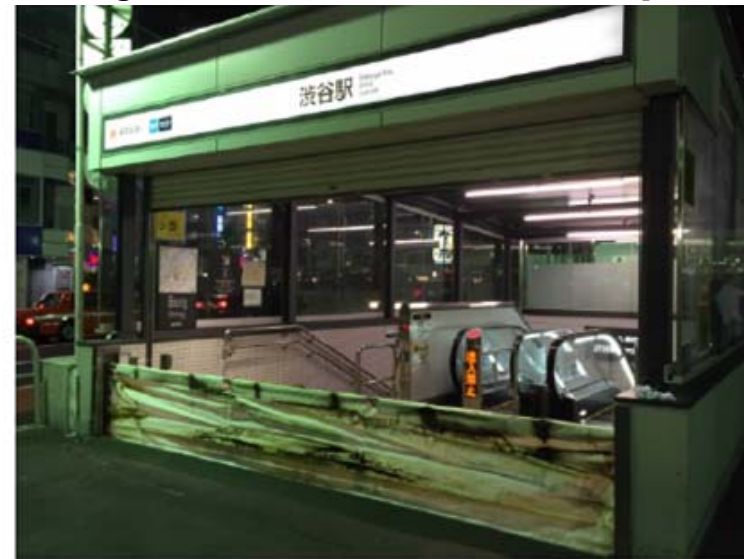


Photo: Examples of water stops installed